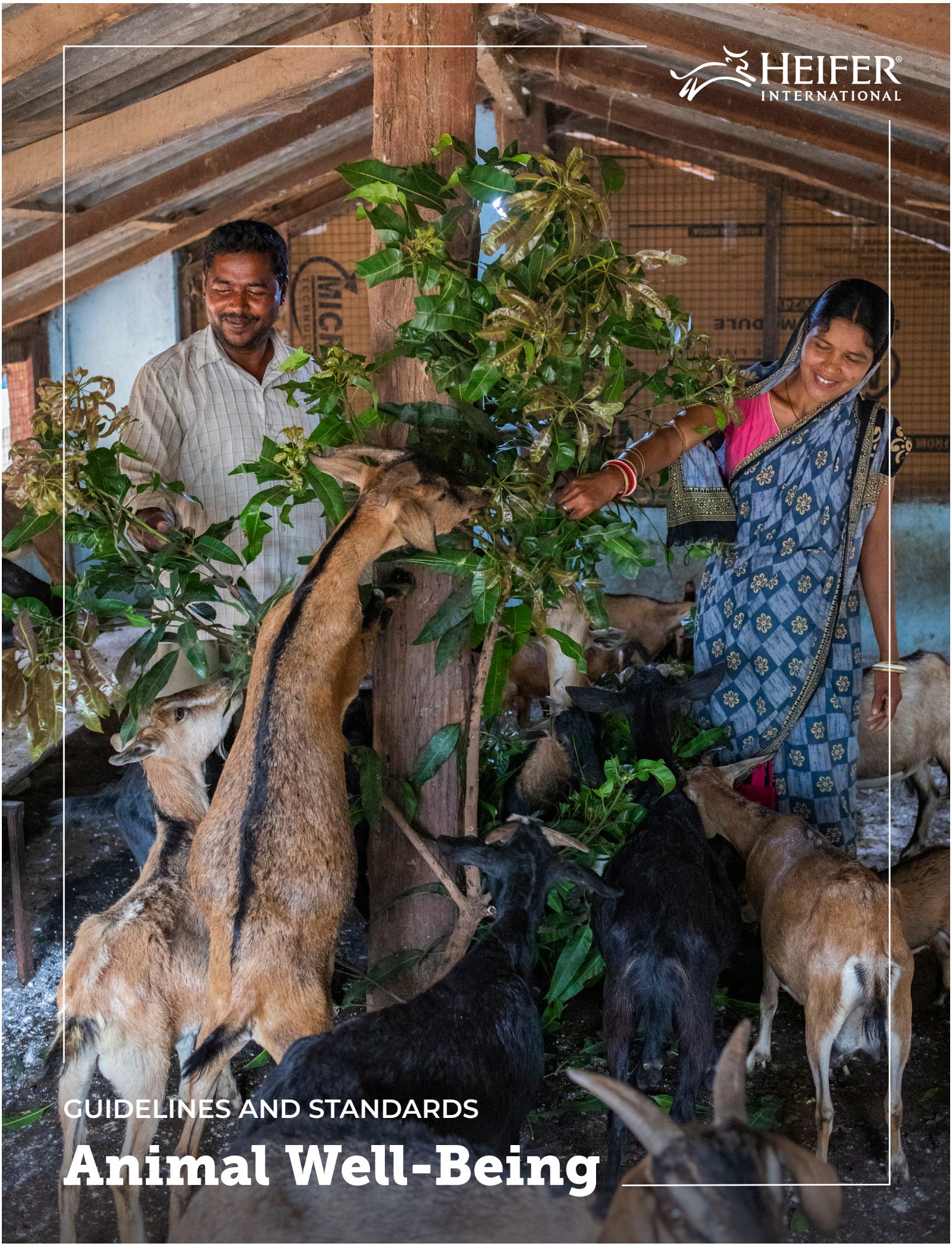
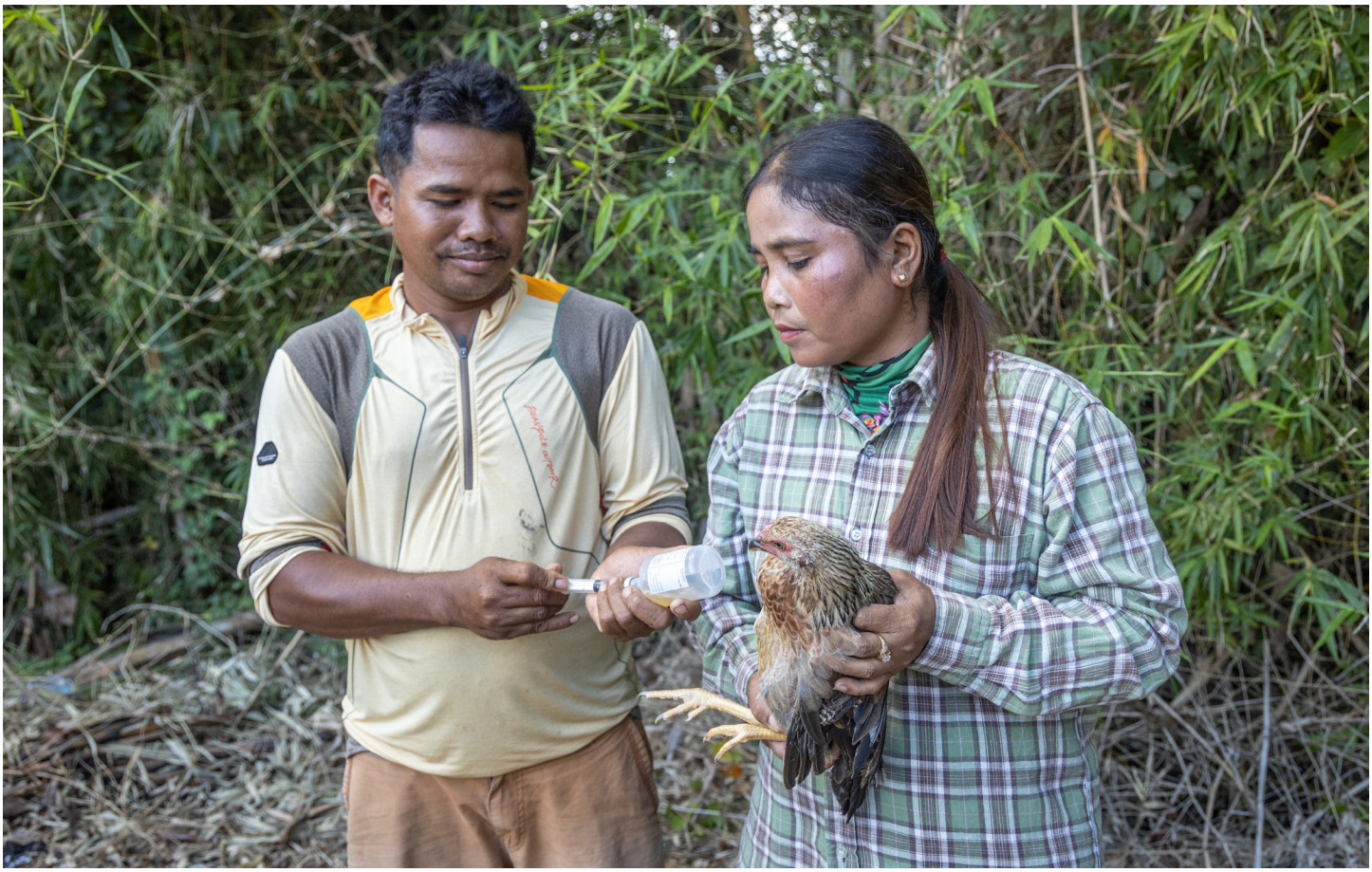


HEIFER® INTERNATIONAL

GUIDELINES AND STANDARDS

Animal Well-Being



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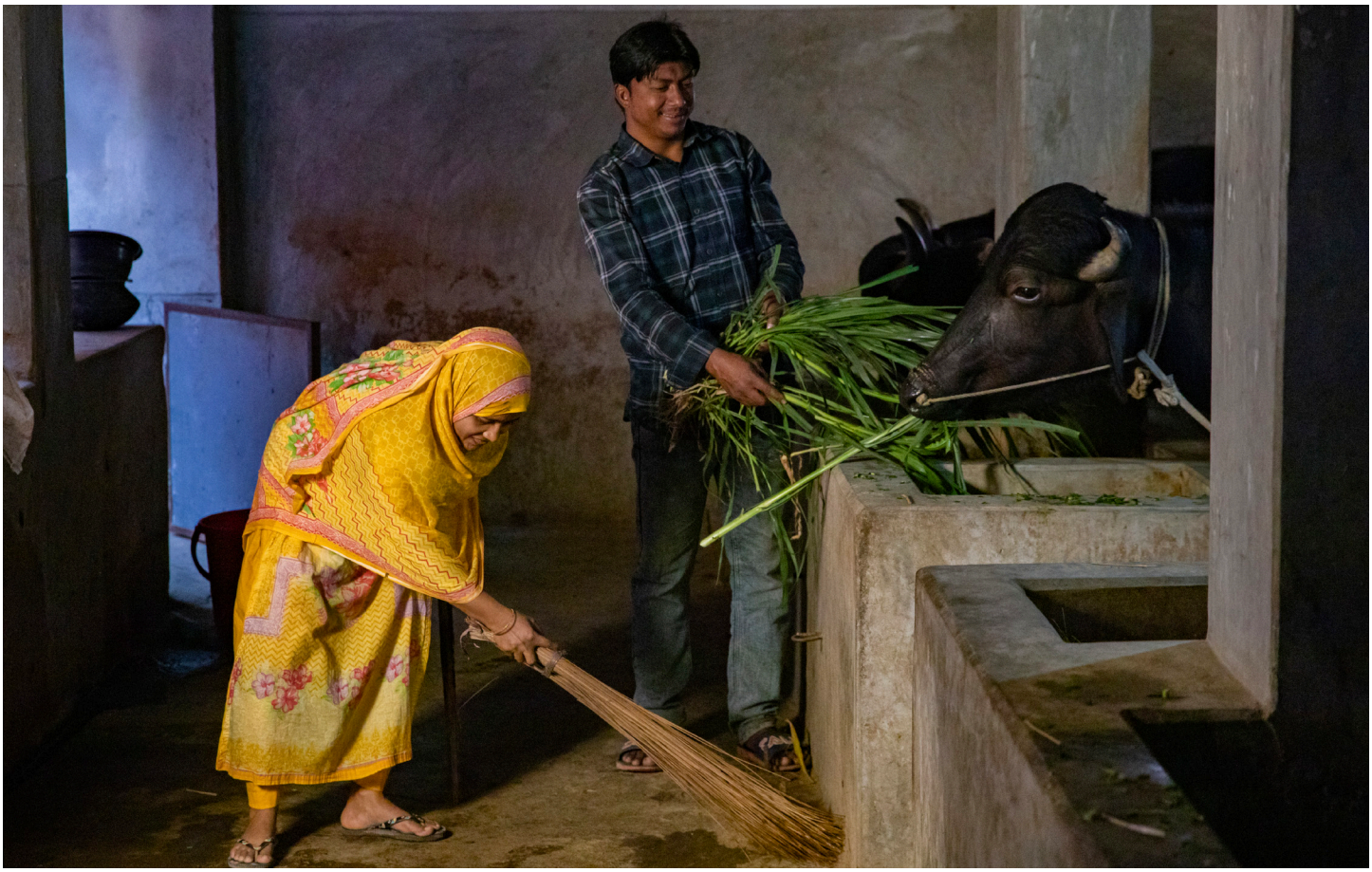


Heifer International and Animal Well-Being

Livestock are integral to food and farming systems throughout most of the world. An estimated 600 million of the world's low-income smallholder farming households earn their livelihoods primarily from raising livestock, while the sector employs more than 1.3 billion people worldwide. For smallholder farming communities, livestock play a key role in providing food and nutrition and economic and environmental benefits.

Heifer International advances sustainable livestock production as part of our food-systems-focused model for strengthening the social, economic and environmental resilience of farming communities. This work advocates rigorous animal well-being standards, supporting smallholder farming communities and value chain actors with technical training and other support to responsibly care for their livestock and build food systems that safely and sustainably feed households.

Heifer's attention to sustainable livestock development and animal well-being prioritizes the One Health approach — a global, multidisciplinary concept recognizing the interconnectedness of human, animal and environmental health — including improved access to animal health services and disease control, improved animal management, improved animal nutrition and improved marketing of livestock and livestock products.

The technologies leveraged include animal genetic improvement; improved feed, fodder and forage production; climate-smart and regenerative practices; and appropriate housing and management, combined with animal health service delivery and appropriate animal insurance systems to reduce the risk of disease and losses.

Tools for Increasing Sustainable Livestock Production:

Heifer's mission to end hunger and poverty while caring for the Earth involves supporting smallholder farmers and farming communities to earn more income and thrive by building sustainable, resilient food systems. It is, therefore, critical that smallholder farming households and value chain actors increase efficiency of livestock production to the level that enables them to establish and compete in inclusive markets, adapt to climate change and foster healthy ecosystems, and meet the nutritional requirements of families and communities. Heifer's locally adaptable "Animal Well-being Guidelines and Standards" outlines innovative and appropriate practices and technologies for its' programs and project participant households to adopt.

Success Indicators:

Heifer's animal well-being (AWB) strategies are considered successful when participant households and their communities see increased production and productivity of their animals, improved environmental resilience and progress toward earning a sustainable living income, our measure for the amount of money required for a dignified life. There is a need for continuous innovation and learning and approaching implementation of proven animal health and husbandry skills as ongoing practices to ensure sustainability and long-term economic benefits.

The Animal Well-being Guidelines and Standards is a living document benefiting from continuous review and improvement resulting from its integration into projects, programs and ongoing monitoring. The adoption of animal well-being practices by project participants and smallholder farming communities is evidenced by improved production and well-being of the animals. Robust AWB strategies and their adoption will be evident when project participants, project partners and Heifer's programs carry out improved AWB practices regarding the following points:

- Procurement of quality animals.
- Production systems are adapted to maximize production with the most efficient utilization of resources.
- Low-cost and appropriate animal housing is constructed consistently in project sites.
- Animals are healthy and productive due to the provision of appropriate animal health services.
- Fodder and forage are produced according to agroecological practices and are sufficient in quality and quantity for the number of animals.
- Animal health services and inputs are supplied by a locally promoted business enterprise.
- AWB processes and systems are consistently in place in each country program.
- Farmer-level AWB practices are adopted and fully practiced.
- The impact of livestock food chains on greenhouse gas (GHG) emissions is minimized.
- Heifer programs are recognized for providing expert services to livestock programs and projects.
- Heifer programs are prepared to deal with conditions that relate to climate change and the effect on the livestock sector.
- Heifer programs are prepared for impending disasters and to rebuild their livestock-based livelihoods following disaster.

Climate-smart agriculture (CSA) is an integrated approach to managing landscape-cropland, livestock, forests and fisheries—that address the interlinked challenges of food security and climate change. CSA aims to simultaneously achieve three outcomes:

1. Increased productivity: Produce more food to improve food and nutritional security and boost the incomes of 75 percent of the world's poor who live in rural areas and mainly rely on agriculture for their livelihoods.
2. Enhanced resiliance: Reduce vulnerability to drought, pests, disease and other shocks; and improve capacity to adapt and grow in the face of longer-term stresses like shortened seasons and erratic weather patterns.
3. Reduce emissions: Pursue lower emissions for each calorie or kilo of food produced, avoid deforestation from agriculture and identify ways to suck carbon out of the atmophere.

(Source: http://www.worldbank.org/en/topic/climate-smart-agriculture)

Climate-Smart Livestock Management Practice

Heifer International is committed to adopting and promoting livestock production solutions that are 'climate-smart', as recommended by the Food and Agricultural Organization (FAO) of the United Nations (UN). Climate-Smart Livestock Management practices that are practiced in Heifer project communities includes but not limited to:

Categories	Practices/ Technologies
Fodder cultivation	Dual purpose legume; high quality improved seed and adaptive species; forage grass and legume fodder banks
Fodder/Forage conservation	Harvesting and conservation of natural and cultivated forage and fodder in the form of hay or silage
Feed quality improvement	Supplementary feeding using concentrate made from locally available ingredients, mineral blocks, use of by-products, and urea treatment of crop residues
Forage integration	Forage legume incorporation into arable cropping
Grazing management	Controlled grazing or zero grazing pens
Crop-livestock-tree	Agro-silvo-pasture/agroforestry, shade trees for reducing heat stress of animal, improved forage values (introduce early maturing tree species with high biomass yield)
Conservation agriculture	Improve soil condition and promote high-yield crops, consequently leading to crop residues
Agricultural water management	Water storage options (rainwater harvesting, small reservoirs); increase fodder production during wet season and provide access to water during dry season
Breeding strategies	Appropriate animal species and appropriate breeds as recommended; selection of quality animals by farmers
Herd management	Species diversification (goats, cattle, backyard poultry, duck or fish as appropriate)
Manure management	Composting, improved manure handling and storage (covering manure heaps, biogas production)

Animal Procurement and Transportation

Purpose: The purpose of this chapter is to describe the guidelines and standards that ensure proper acquisition, purchase and transportation of livestock in compliance with accountability procedures of Heifer International as well as safeguarding their welfare and safety during transportation on-hoof and/or by-air.

This standard provides the basis for developing and implementing consistent procedures across all projects and programs within Heifer International and serves as a guideline to those responsible for animal procurement and transport. These guidelines and standards are based on proven animal management practices and the expectations of Heifer International.

Objective: Animal procurement will be directed toward the appropriate animal for a household's resources and the local environment that will provide nutrition to the household and that offers a positive return in local markets. Animals will be transported using humane practices, whether on-hoof or in vehicles.

Animal Procurement Committee

The Committee shall be responsible for selecting livestock appropriate to the abilities of the Heifer program household and nutritional resources of the program region. Transportation will be selected within the means of the community and within the boundaries of our commitment to humane best practices.

The Animal Procurement Committee shall be composed of the Community Agro-Vet Entrepreneur (CAVEs)/ Technical Person, Project Partner, representative of the self-help group (SHG) and Representative of Heifer country program staff for livestock procured locally. For livestock procured externally, the Committee shall include a representative of the government livestock regulatory office. Adjustment to the composition of the committee can be done as appropriate. The procurement of livestock should follow the Heifer's country office and global procurement policy. Compliance with government requirements for movement of livestock and acquisition of mandatory health certificates will be observed.

Standards: The committee is responsible for identifying animal sources and setting the standards and quality assurance of the animals following the guidelines set by Heifer International in tandem with relevant country specific regulations.

The Procurement Committee complies with these regulations to ensure the supply of quality livestock at appropriate prices, to ensure the rights and obligations of buyers and sellers and to minimize damage (if any) to relevant stakeholders in the project implementation process.

Animal Procurement

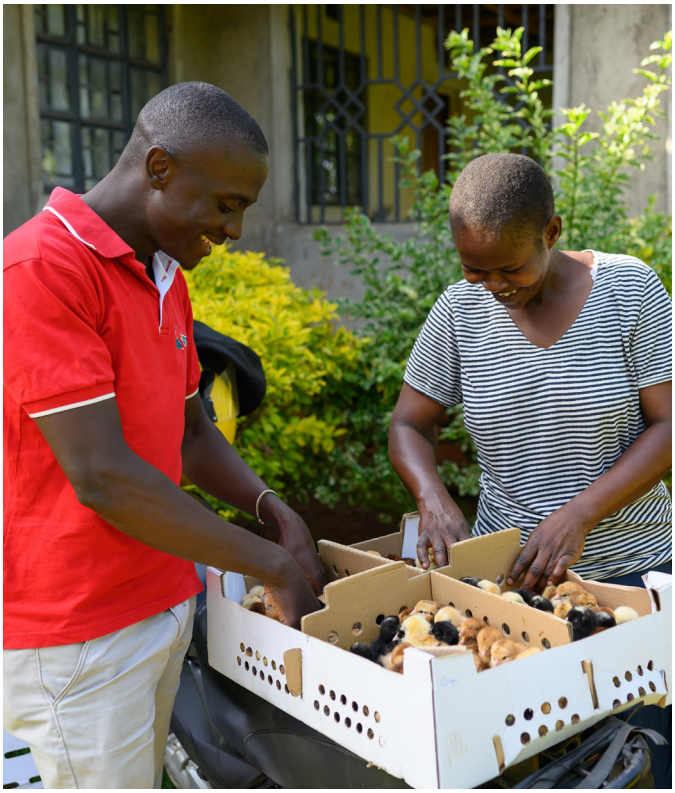
Standards: The Animal Procurement Committee (APC) identifies the livestock market opportunities, chooses quality livestock and advises on care and management of animals during procurement and transportation including the use of appropriate vehicles for this purpose.

- APC will ensure the fulfillment of the contractual obligation of suppliers as required by local law or Heifer International policies and procedures.
- The APC shall comply with relevant local financial requirements including the bidding process, cash advances and liquidation to complete the financial obligation. The APC will ensure that the procurement process meets Heifer International financial procedures.
- When necessary, the APC will obtain the appropriate movement permit(s) and health certificates to transport animals from the source of origin to the destination.
- Technical staff/project partner staff or APC members may accompany the animals in transit to assist with their safety during transportation.
- Each recipient household receiving animals will prepare the animal shed / housing as recommended by Heifer International. Appropriate feed will be in place prior to the receipt of animals.

Guidelines For Animal Procurement

Identification of Animal Sources

- Identify farms, communities, local markets, traders and or other credible suppliers that have enough and the necessary animals to allow selection from the group and that meet the supply requirements of the program.
- Heifer International animal selection standards will be considered during identification and selection.
- Animals so identified shall have a health record and production history including a record of previous vaccinations, deworming and previous health issues, when available. Sourcing animals from areas with recent disease outbreaks will be avoided. Disease free zones are recommended.
- The livestock procurement committee will conduct a final evaluation and approve the final source.
- Selected livestock shall be identified using appropriate means to ensure that only the selected animals are procured and delivered to desired destination.



Bids and Bidding

Guidelines for the procurement of Heifer International livestock shall be specified for each project and in accordance with Heifer International policies and procedures.

- The APC may involve other relevant stakeholders during this process.
- A checklist will be prepared. The bidding process will be clearly identified and agreed upon by Heifer staff, project partners and sellers.
- A broad search for animal suppliers/ communities which meet Heifer criteria for animal purchase will be conducted.
- The APC shall request a quotation from the suppliers/ communities for the livestock required based on set specifications.
- After identification of the potential suppliers, The APC will visit potential supplier farms/ communities.
- The APC will select at least three (3) quotations from three or more different supplier/ communities. If three quotations cannot be sourced, a waiver from Heifer Program office must be obtained. The committee will award contracts to the selected bidder who supplies high-quality animals for a reasonable market price. The committee can award contracts to two or more suppliers if the capacity of the best supplier can't meet the demand.

Documentation for Auditing and Payment Process

- An Animal Purchase Contract, including the financial invoice will be recorded.
- The Project Management Committee will confirm the list of potential project participants that may receive animals.
- Animal purchase quotations, order and final purchase documents will be retained by the Heifer Program Finance office.
- The APC meeting minutes and bid analysis will be retained as part of the permanent Heifer office record.
- Contract documents, project recipient and project pass-on recipient records will be retained. Contract obligations and payments, delivery records and records of acceptance of animal will be retained.

Guidelines For Animal Transport

Objective: Animal transport vehicles and facilities for holding, loading and unloading are safely ensured, maintained and operated to minimize risks to animals.

Standards: A person in-charge, identified by animal procurement committee, must ensure that the vehicles and animal handling is done in a way that minimizes risk to the welfare of animals.

Animal transportation

Vehicles and facilities must:

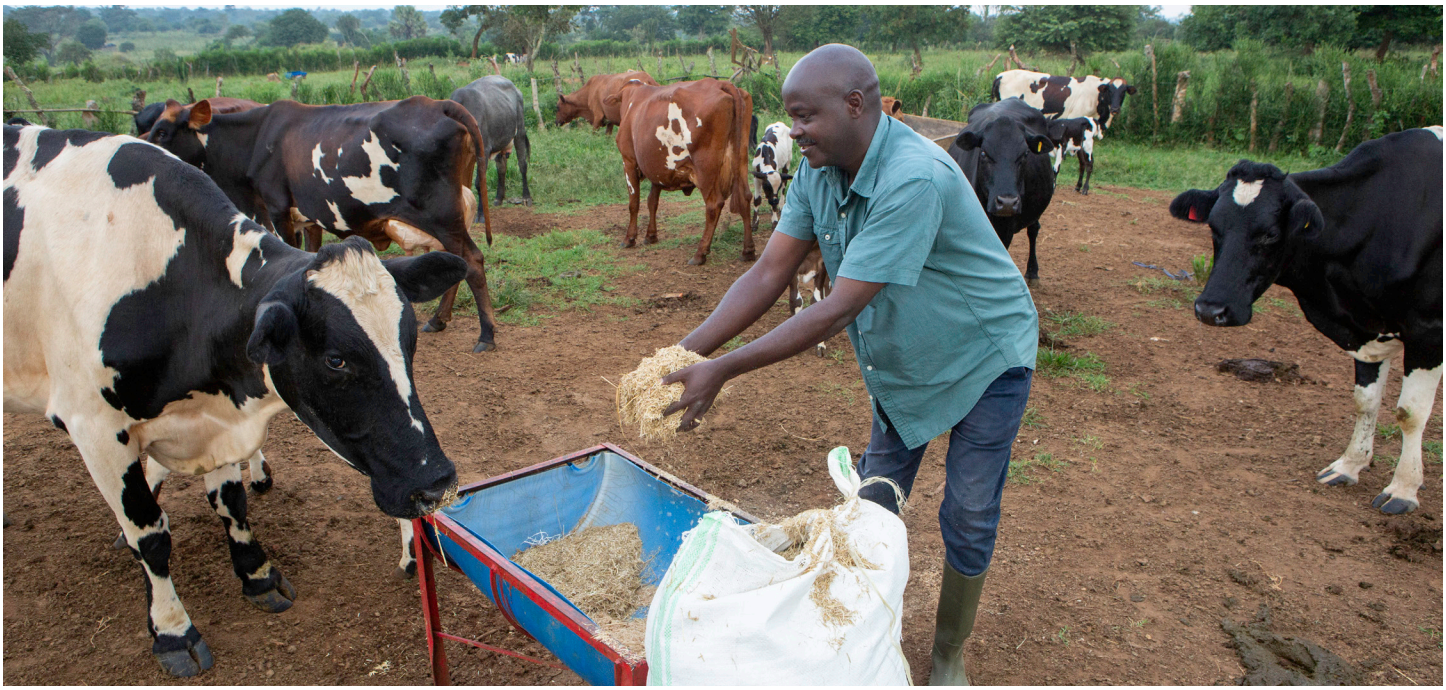
1. be appropriate to contain the species; and
2. have effective airflow; and
3. have flooring that minimizes the likelihood of injury or of animals slipping or falling; and
4. be free from internal protrusions and other objects that could cause injury; and
5. have sufficient vertical clearance for animals to minimize the risk of injury.

Mode of Transportation: Depending on the requirement of the animals as specified in the project, several modes of transportation are possible.

- From communities, nearby (walk on-hoof/herding).
- From distant locations transport using a vehicle.
- Airlifting from one country to another/from different continent.

Animal Transportation

- Vehicles, crates and containers should provide a suitable environment to minimize the risk to the welfare of animals from extremes of temperature, weather and humidity.
- Vehicles, crates and containers should be properly cleaned.
- Internal sheeting of the vehicles should be smooth to reduce the risk of pressure points and bruising.
- The crates inside the vehicle should ensure that animals, can rise from lying in a normal manner without contacting overhead.
- Flooring and surfaces of the vehicles should have grips to minimize slipping and falling
- Appropriate bedding should be provided for certain classes of animals.
- Fixed partitions in the crate for use when travelling in hilly or high-traffic areas or when carrying small numbers of animals, to prevent animals being thrown around or injured. Partitions should also be used for segregation when required.
- Considerations should be given to the speed limits of the vehicles when transporting animals from one place to another.
- Heifer International country offices are encouraged to follow country specific government mandated animal transportation guidelines and standards. (e.g., Livestock Movement permit).
- Close observations/ monitoring or segregation or quarantine of the animals are practiced as recommended by the Heifer International or as mandated by the government regulations.
- There should be provision of animal insurance or any form of guarantee either through the suppliers or through other insurance providers in case something happens to animals during transport.
- Vehicles must have First Aid Kit.
- Ensure water points/ resting en-route.
- Based on local veterinary advice, vaccinate animals against diseases immediately after purchase and before mixing/ transportation.

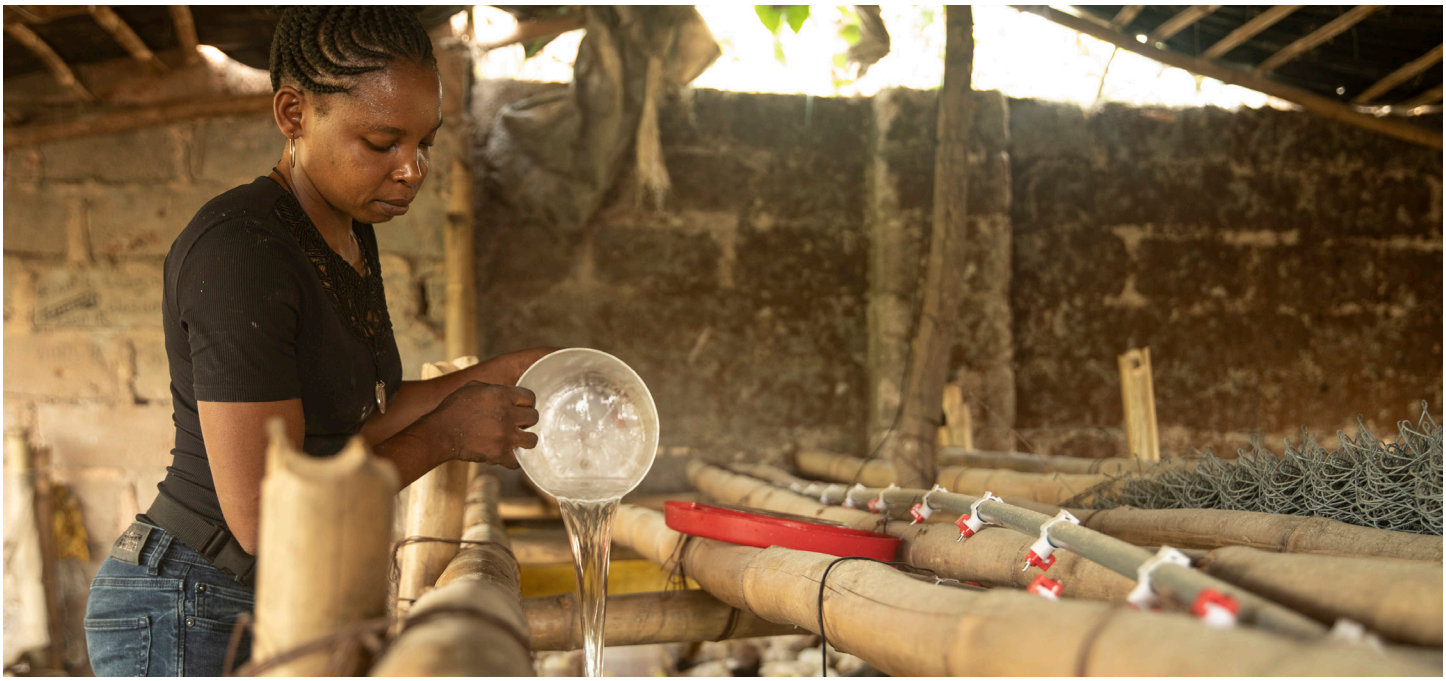


Animal Nutrition (Feed, Fodder and Forage Production)

Purpose: The purpose of this section is to describe strategies and guidelines for improving the productivity of the animals by promoting efficient use of feed, fodder and forage.

Strategies: The following strategies are recommended to promote efficient animal nutrition activities at different levels (from project to households to the country offices).

- Choose a system of an efficient production model i.e., extensive system of rearing vs. intensive system vs. semi-intensive method.
- Promote zero grazing or controlled grazing practices.
- Build capacity of the communities to be able to provide sufficient nutritional security for the animals.
- Ensure appropriate feeding of animals for better health, production and productivity status.
- Production methods that have a positive impact on the environment; reduce negative impacts on the environment.
- Promote feeding techniques that minimise methane emissions.
- Promote feed and fodder from Farmer-Owned Agribusiness (FOABs) and Community Agro-Vet Entrepreneur (CAVE) or program sustainability.
- Promote the creation of / build relationships with fodder research and resource centers in the country.
- Build capacity of other stakeholders and value chain actors to meet the demands of feed and fodder.
- Partnering with private sectors to ensure the availability of concentrate feeds at community level.
- Capacitate cooperatives in production of concentrate feeds and promote its value chain.
- Ensure diversity of crops and fodder and forage that lead to improved soil quality.
- Efficiently manage manure to increase crop or forage/ fodder production and reduce the production of greenhouse gases from manure stockpiles and slurry. Agroforestry is a climate-smart farming technology that helps to reduce the emission of greenhouse gases into the environment through carbon sequestration, improved feed and consequently reduced enteric methane as improving the resilience of agricultural production to climate variability by using trees to intensify and diversify production and buffer farming systems against hazards.



Guidelines

To address the nutritional needs of animals in an efficient climate-smart way, the following guidelines should be followed.

Build the capacity of the community by providing the following training on animal nutrition

- Efficient use of water for meeting the requirements of livestock and agriculture.
- Cost-effective use of concentrate feed to optimize production status e.g., replacing concentrates with good quality pasture or use of home-made balanced concentrate rations using locally available feed ingredients.
- Improve quality and palatability of crop residues e.g., chaffing, straw treatment by urea/ salt.
- Promote the provision of mineral blocks and/ or salt licks to improve digestibility and to fulfil the mineral requirements using cost-efficient techniques; e.g., mineral block, urea-molasses-mineral-block (UMMB), etc.
- Increase yield of fodder/ forage per unit of land using improved land management practices to attain self-sufficiency at the community or smallholder farming household level.
- Nursery management; fodder/ forage seed harvesting, processing and storage at the community level.
- Promote techniques of fodder/ crop residue/ agroindustrial by-products (waste from fish processing, seed cakes) processing and preservation e.g., hay, silage, storage bales, straw bricks, pellets.
- Promote fodder preservation techniques (hay and silage making) to ensure year-round availability of green fodder.
- Promote technologies that improve feeding systems to minimize feed, fodder/ forage wastage example using feeding troughs feed racks, paddocks.
- Practice agroecological and agrosilvo-pastoral systems for efficient land use.
- Appropriate land management practices adopted by smallholder farming households.
- Promote feeding requirements to meet specific needs of the animal e.g. lactating, drying off, reproductive, steaming up, calf feed requirement.
- Promote rainwater harvesting techniques for fodder production.
- Provide clean water to the animals as required. Average daily requirements of water vary with species, season and other factors.
- Calculate the annual requirement of the animal species to align with the appropriate daily nutritional requirement standards.
- Provide information to farmers on the toxic plants common to the areas used for foraging and the dangers of aflatoxins.

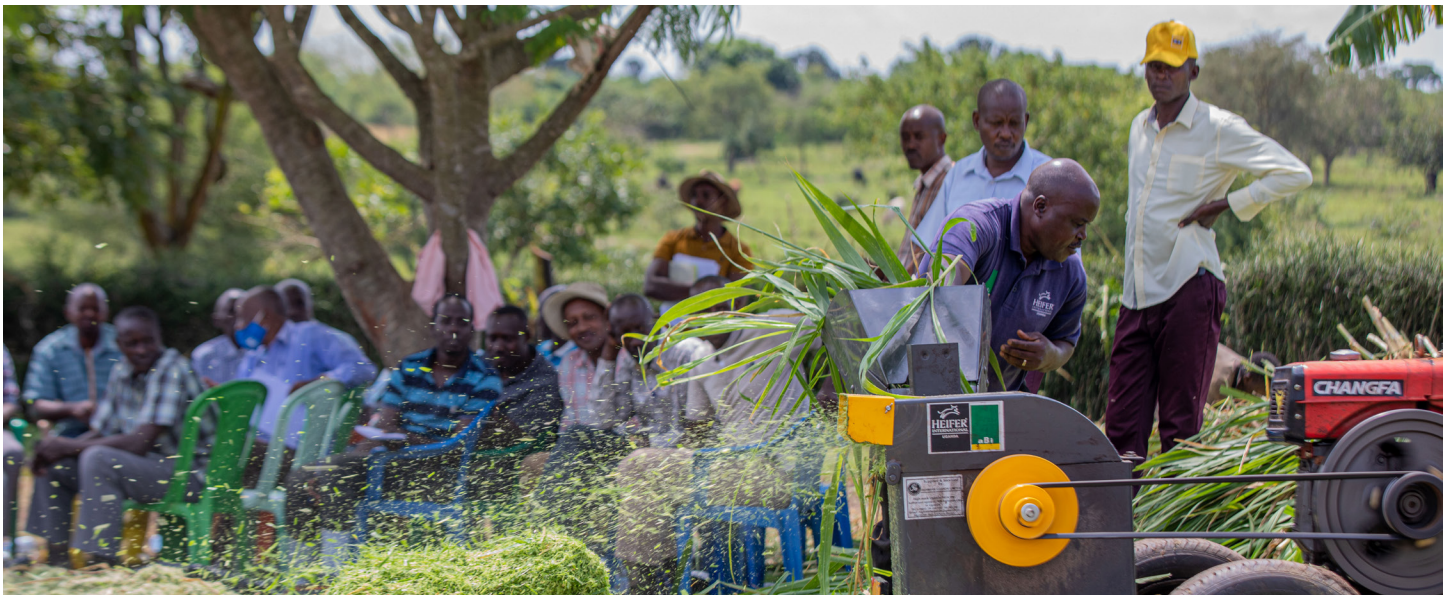
- Ensure appropriate feeding of animals for better health, production and productivity status. Provide adequate amount of water, homemade/ commercial balanced concentrate feed, good quality fodder/ crop residues and mineral block/ mix/ salt licks.
- Complement effects of good nutritional practices with strategic deworming, tick control and vaccination for healthy productive animals.
- Support community to move towards increasing flock/ herd size with increased feed and fodder sufficiency to increase household income.
- Promote farm level record keeping in order to monitor performance, especially production and health records.
- Promote livestock production techniques that positively impact the environment; identify and refrain from practices that have negative impacts on the environment.
- Define plantation targets by finding deficit in fodder requirements e.g. Fodder trees, nurseries.
- Prepare a list of appropriate, locally available fodder/ forage, multipurpose, drought/ salt/ flood resistant species with their biomass production capacity.
- Promote tree nursery establishment, seed harvesting, processing and storage to ensure they meet plantation targets and for regular availability of seeds at the community level.
- Timely planting, transplanting and post transplanting management should be planned in a campaign mode.
- Practice appropriate resting periods within the rotational grazing season.
- Develop mechanism to continue activities even after the end of project life.
- Promote prudent use of soil fertility improvement methods.
- Practice soil conservation and utilization with unused land.
- Utilize shade trees to reduce heat stress on animals and to increase productivity. Trees also improve the supply and quality of forage, which can help reduce overgrazing and curb land degradation.

Promote fodder/forage as a business enterprise

- CAVE, PMC, Cooperatives or producer companies and hubs should have a component of feed and fodder enterprise for sustainability of input supply.
- Seedling/ sapling distribution/ sales outlets can be established at existing CAVE shops through PMC/ producer company and hubs.
- Other tools and accessories including seeds, fertilizer, shovels, water sprinklers, tree fencing etc. should also be available from the CAVE shops as per the individual countries local/regulatory laws.
- Publicity of location of these spots should be made to let community know where they can buy plants and other accessories.
- CAVE training should include components such as improving quality of straw by salt/ urea treatment and improving and utilizing ground feeds for ruminants by mixing quality bran with proper ration of other cereals, farm by-products and legumes. Innovative practices (such as cultivation of Azolla which is known to have a high protein content and low cost. This product can be consumed by non-ruminants and ruminants alike and can be promoted by CAVEs or PPs.
- Fodder/forage business plans at household or coop level/capacity building/fodder banks.

Promote Fodder Research and Resource Centers

- Promote research and innovation in the field of fodder and forage management in collaboration with research institutes, farms and other related stakeholders.
- Improved varieties or species of grasses, forages and fodder can increase productivity according to research recommendations.
- Promote good quality native grasses in communities where they grow well. Promote innovative agroecological practices suited to local context to address fodder scarcity and climate change adaptation.
- Link FOABs (cooperatives) with technical people or organizations for continuous flow of the latest knowledge and information on fodder/ forge production for sustainability.



Linkage and capacity building of other stakeholders

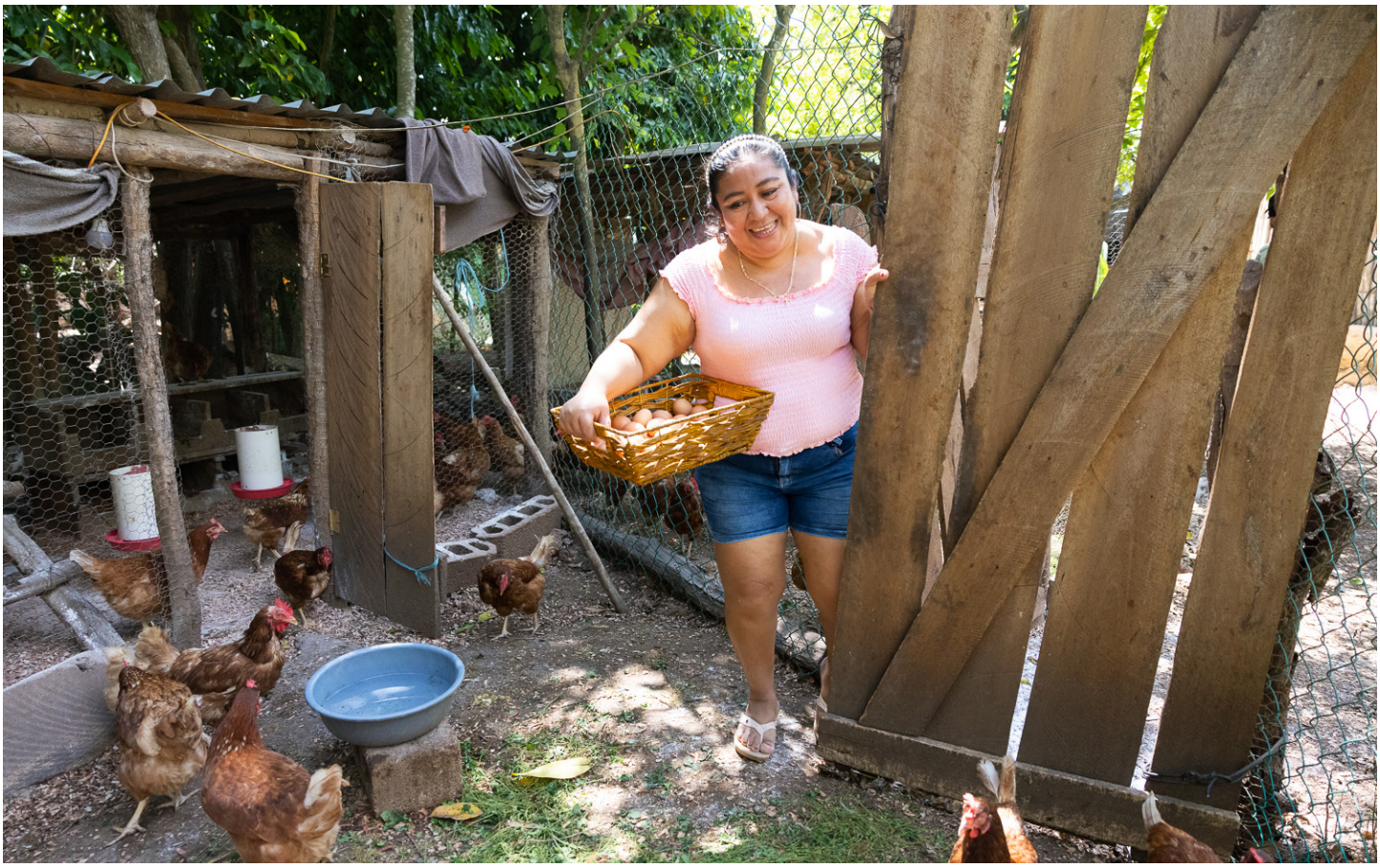
- Stakeholders, project partners and other line agencies would initiate strategies to develop model farms as resource centers for forage and fodder.
- Influence local bodies to lease out community lands for fodder and forage cultivation.
- Develop mutual agreements between government line agencies to develop strategies and activities in promoting fodder and forage program.

Diversify fodder and forage crops

- Promote growing of leguminous and non-leguminous plants (fodder/ forages) to increase production and fertility of soil, improving the environment.
- Promote fodder/ forages in agroforestry, silvo-pastoral systems for diversifying income and for optimizing available land.
- Promote fodder trees along farm boundaries or road sides to work as a living fence.

Activities for promoting feed and fodder/ forage production

- Heifer staff and project partner staff should be sensitized to the importance of managing feed and fodder/ forage as a part of Heifer's Cornerstone training.
- Guide communities to prepare annual feed and fodder/ forage production calendar.
- Prepare simple to use, step by step training materials covering all aspects of feed, fodder and forage management based on annual feed and fodder calendar.
- Promote high quality, locally available and appropriate fodder/ forage species.
- Feed and fodder/ forage management should be an integral part of Improve Animal Management (IAM) trainings for the farmers.
- Design a separate focused training on feed and fodder/ forage management for promoter/ progressive farmers, CAVEs and others as appropriate.
- Involve Government/ Research/ Resource center experts in trainings for building long term relationships and complement their efforts on fodder/ forage development.
- Promoters, leader farmers, CAVEs should establish model farms for forage and fodder that will serve as demonstration farms for the community members Integrate feed and fodder/ forage management as an integral part of participatory self-review and planning (PSRP) conducted by SHGs or project communities.
- Scale up fodder/ forage activities for influencing government policy and other stakeholders.
- Consider fodder/ forage production as a part of overall agro-ecological practices or climate change adaptation.



Animal Housing Management

Purpose: The purpose of this section is to describe the strategies and guidelines to be used as a standard requirement for animal housing and to enhance animal safety, productivity and well-being.

Strategies: The following strategies are recommended to promote appropriate animal housing according to animal species.

- Choose appropriate system of rearing to maximize the comfort and productivity of animals with minimal impact on the environment be climate-smart (zero grazing/ controlling).
- Design appropriate low-cost animal housing models based on species.
- Develop training and extension materials for promoting appropriate animal housing models with respect to species and agroclimatic zones.
- Develop appropriate collective animal housing models (if required or necessary).
- Promote and mainstream management practices (manure and urine management, etc.) as part of regular activities.

Guidelines

Animal housing should provide enough space for each animal to lie down, turn around, and display the animal's normal behavior; it should be inexpensive, easy to build, allow easy access for management practices, be of appropriate design and be built using locally available materials and compliment a system of rearing which is climate-smart.

1. Guide farmers to select appropriate system for animal rearing: trade-off between extensive and intensive system of rearing to semi-intensive system of rearing.
    - Guide farmers to select appropriate site for animal stall construction are:
        - Topography
        - Soil type
        - Water supply
        - Accessibility
        - Labor
        - Marketing
        - Electricity
        - Ventilation
        - Thermo neutral zone
    - Key components in housing are:
        - Animal holding area
        - Washing area
        - Storage (feed, medicines, etc.)
        - Open Area (for exercise and roaming)
        - Gutter area
        - Feeders and waterers area
        - Isolation area
        - Quarantine area
        - Nursing area, etc.
2. The animal shelter should normally buffer the extremes of climatic conditions to reduce stress on animals housed. The main climatic factors from which protection has to be provided are high and low ambient temperatures, environmental humidity, solar radiation, wind and rain.
3. Recommend low cost, climate-smart, disaster proof and appropriate animal housing which will minimize impact of disasters and meets the criteria as indicated below:
    - Provide protection to animals against stressful environment: basic principle that should guide the farm manager on building a farm is to:
        - Reduce heat gain.
        - Promote heat loss from the structures of the animal house by radiation and construction during summer.
        - During winter the structures those come in physical contact with animals like floors and walls should not get too cold and should give protection from cold winds.
    - Protect animals from disease exposure and extreme weather conditions.
    - Provides security/ protection from predation and theft.
    - Permit provision of clean water and feed without contamination from urine, feces or litter.
    - Facilitate easy monitoring of health and behavior of the animals.
    - Permit efficient and stress-free daily care.
    - Provide physical comfort (e.g., variety of surfaces, bedding, temperature control).
    - Provide good air quality (ventilation) and optimum sunlight.
    - Provide sound environmental care through proper drainage system and manure collection yard.
    - Provide animals with the opportunity to express normal behavior, such as (depending on species and housing unit) hiding, perching, walking, running, jumping, scratching, playing, and interacting with other animals of the herd and people.
    - Provide room for expansion according to subsequent increase in herd size.
    - If possible, animal pen should have separate area/ compartment for care and management of pregnant and sick, young and mature animals and a separate milking parlour or hatching facilities for chicken (should be/ recommended), open space/ paddock for exercise .
    - Discourage mixing of multiple species.

4. Consider space requirements while constructing the animal house according to species.

Table 1: Basic space requirement for different animal species/approximate

Animal Species	Space Requirement (per head)	
	In feet (L×B*)	In meters (L×B*)
Cattle	6×4	1.8×1.2
Water Buffalo	7×5	2.1×1.5
Swine	5×4	1.5×1.2
Sheep/Goat	3×2	0.9×0.6
Horse	6×6	1.8×1.8
Rabbit	2×2	0.6×0.6
Chicken	1×1	0.3×0.3

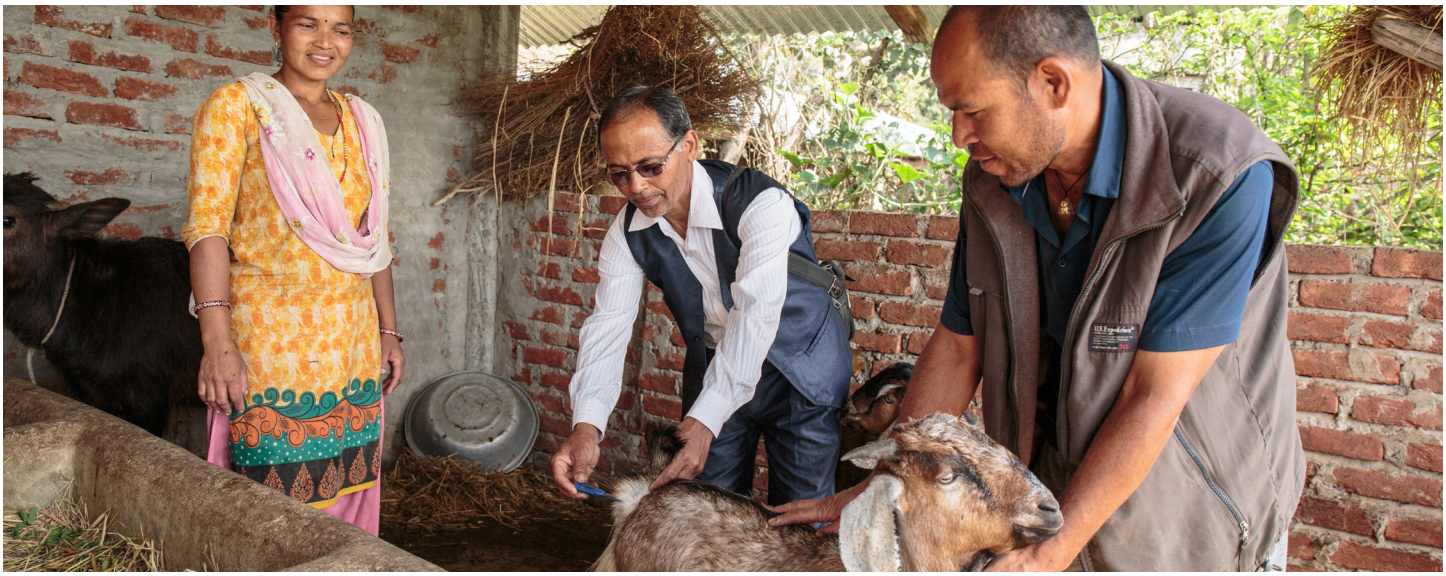
Note L = length, B = breadth

The general recommended height should be customized according to agroecological zones, breeds, age of the animal and the ability to freely move its head up and down, etc.

5. The animal house should have provision for an appropriate water trough and feeding trough.
6. Daily water requirements of animals for drinking purposes depend on the following factors:

- Body size of animal: Heavier animals require more water.
- Physiological condition: Lactating animals require more water than dry animals or males in direct proportion to their level of milk production.
- Seasons: during summer animals consume more water (20 to 25%) than during winter months.
- Nature of feed: animals receiving predominantly dry feed requires more water than those getting succulent fodders.
- Buffaloes, by virtue of their physiological nature, require more water than cows.
- Sheep require less water i.e., approximately 5 litres per day during cold season and 7 to 9 litres per day during summer season.
- Lactating does consume 20 to 25 litres of water per day.

7. There should be a provision for collecting manure and composting (including vermi-composting) and urine collection so that these by-products can be used for increasing agricultural production and reducing GHG emission.
8. Develop and or identify demonstration farm or model farmers to help others learn and adopt improved housing techniques.
9. Make sure to have continuous discussion with farmers on improved housing as part of PSRP and Improved Animal management.
10. The animal housing should also include space for preserving fodder/ forage, crop by products for lean period or off-season.
11. Farmers should regularly clean animal housing.
12. Maintain/repair animal housing.
13. The animal housing should be protected around with fencing.



Animal Health

Purpose: To provide brief guidelines and standards to promote responsible use of veterinary drugs, minimize health risks due to climate change, prevention and control of diseases of economic and public health importance, promoting disease surveillance and partnerships and collaboration with public-private veterinary services, development of animal health care delivery system (e.g., CAVE) to enhance accessibility and availability as well as promote affordable veterinary services and supplies in line with government policies and regulations.

The animal health section will provide a general overview on how to develop animal health strategies including the development of Community Agro-Vet Entrepreneur (CAVE) programs for addressing animal health issues of the community. Of the various animal management aspects that project participants must consider, animal health is the most critical component. To address animal health needs of the communities, Heifer International has developed and implemented the CAVE program.

Strategies

- Provide sustainable animal health services to livestock raised by communities in project areas.
- Develop animal health service providers (e.g., CAVE) for socially, technically and economically sustainable (community-based health services).
- Establish sustainable input supply systems (e.g. hubs, agro-vets, cooperatives).
- Collaborate with technical stakeholders (government and private veterinary systems). for technical backstopping, support services
- Participate in and strategically influence the development of appropriate animal health policies.
- Safeguarding animal health service providers, promoting biosecurity measures and biomedical waste management.

Animal Health Standards

- Appropriate animal health service delivery system established.
- Accessible, available and affordable input supply system established.
- CAVE (participant selection, curriculum, training delivery, refresher course) standard developed and implemented. Also set a standard for training CAVEs as a business entrepreneur.
- Improved animal husbandry system established.
- Promote well-being of the animals through humane treatment.
- Animals should have less burden of parasites. Minimize the incidence of diseases.

Community Agro-Vet Entrepreneurs (CAVEs)

Community-based entrepreneurs are trained in basic technical knowledge and skills on livestock and crop production; they provide extension, animal health services and related input supplies to their community in a sustainable way. These CAVEs also support self-help group (SHG) members in improving their animal management skills and using their own land as demonstration farms. CAVEs can build steady client bases for their services and products through these relationships. This opportunity attracts the youth to agribusiness, reducing their migration to cities. Both the communities and CAVEs can benefit from each other by doing the following:

- Business contracts with SHGs and Cooperatives for creating win-win situations, which will ensure both market and supplies for the producer farmers.
- Introduction to business expansion: Start from a small to modest scale, depending on the capacity of the farmers in the community. It is also guided by the market potential of the commodities or produce. The higher the market potential, the lesser the associated risks are.
- Learn the business as a continuous process and then expand it by reinvesting the profit.

CAVE Standards

- Plan in place for CAVE development (selection/training/training service providers).
- Collaborate with government veterinary/agriculture system for CAVE registration/recognition.
- Standard training curriculum is in place and in use.
- CAVEs are integrated to the business hubs/cooperatives.
- Develop sustainability mechanisms. CAVEs that are socially accepted by communities, technically sound and proficient, economically viable and that will enable them to earn a livable wage from their agrovet business).

Selection of CAVEs

The following criteria gives guidance on selection of appropriate participants for CAVE training. The selection process is also guided by the local regulatory requirements; community needs and aspirations and availability of the participants for selection.

- The participants are selected by communities (SHGs or project communities, project partners, Heifer staff as appropriate).
- She/he should be registered with the local regulatory body as appropriate and have a letter of recommendation from the local veterinary office.
- She/he should be interested in agriculture/ animal raising or have been engaged in agricultural activities.
- He/she should have a minimum education with an ability to read, write and do some simple math.
- She/he should have an aptitude for farm management and ready to become a model farmer.
- She/he should have some business skills/ interests.
- She/he should have leadership and communication skills; understanding of local language is an added advantage.
- Can access credit/reliable if she/he needs financial capital to expand agrobusiness
- She/he should be committed to develop demo farm.
- She/he should be willing to provide technical services.

Trainings to CAVEs

CAVEs will go through a series of trainings including but not limited to the following as outlined below. These trainings can be categorized into social capital (C), business development (B) and animal agriculture (A). Most important of which are Community Animal Health Worker (CAHW) and business/enterprise development training. Some of the trainings outlined below can be outsourced to organizations that provide high quality training. Duration of each training and curriculum may vary depending upon the contexts and requirements of the national, local government system of the Heifer country program.

Training on Animal Agriculture:

1. Community Animal Health Worker (CAHW) training.
2. Periodic refresher on CAHW Training (as appropriate and as available).
3. Training of Trainers (TOT) on the basic principles of production, utilization and conservation of fodder/forage.
4. Agricultural training (includes basic agriculture, vegetable/fruit production, mushroom farming, bee keeping etc.
5. Training on CAHW code of ethics and conduct (if required by local law).

Training on Business Development:

6. Business/Enterprise development — training for CAVEs to also include development and implementation of agrovet business plans.

Training on building Social Capital:

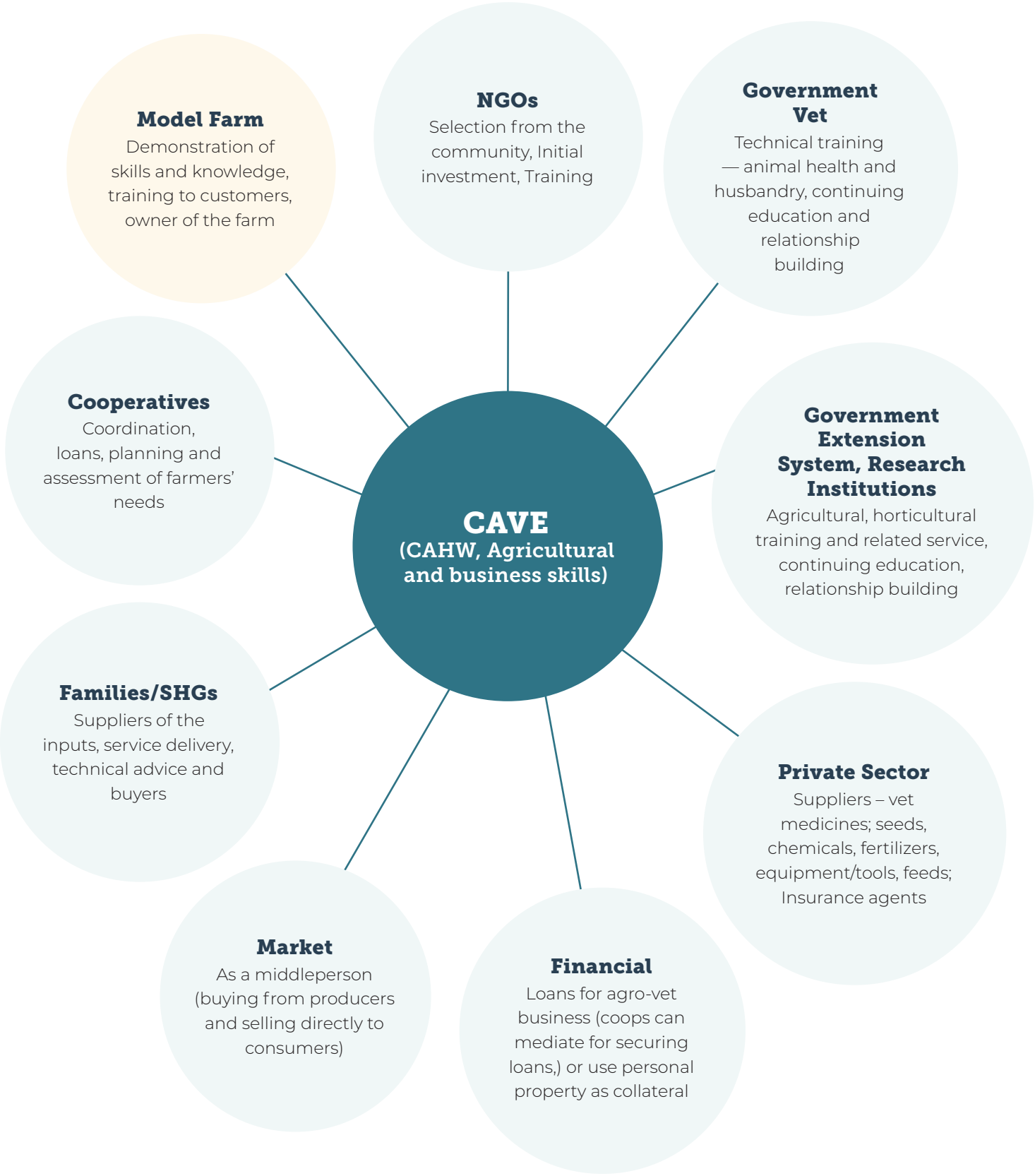
7. Heifer's Cornerstones and PSRP.
8. TOT for communication and facilitation skills development.
9. Other training as recommended.

Table: Recommended duration of training for Heifer International Country Programs

	Name of the Training	Suggested Duration	Remarks
1	CAHW training	Minimum 2 weeks	Guided by a country's regulations
2	CAHW refresher training	5-7 days	Guided by the needs of participants
3	TOT on fodder/forage/nursery development	3-5 days	For promoting fodder/forage development
4	Basic agriculture training	5 days	Guided by the scope and opportunities at the community
5	Training on CAHW code of conducts and ethics	1 day	Facilitated by local/district veterinary system
6	Business development training	5 days	Focus on agrovet business
7	Heifer's Cornerstones and participatory self-review and planning process (PSRP)	5 days	Heifer's model
8	TOT on communication and facilitation	5-7 days	For using CAVEs to provide training to farmers

Relationship with other Stakeholders

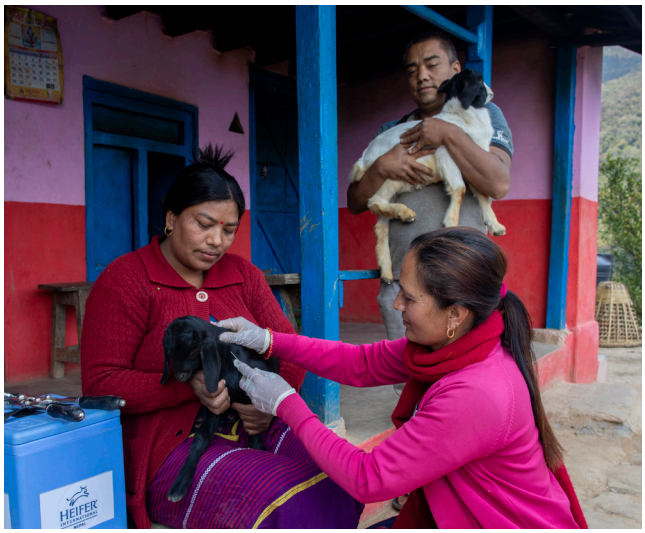
Relationship building with different stakeholders is essential for the sustainability of the business for CAVEs. It also produces synergistic effects; for example, by fulfilling the target of the government agriculture and veterinary system and by increasing the capacity of CAVEs on business and technical skills. The illustration below details some of the important relationships CAVEs will have with different stakeholders.



Roles and Responsibilities of the CAVEs

The following are identified roles and responsibilities of CAVEs, but they are not limited to perform these functions only.

- Regular health examination of animals and first aid or follow up treatment of sick animals by conducting regular home visits (if necessary, with guidance from veterinarian).
- Record and disseminate animal health messages to ensure animals are vaccinated against major diseases (like Peste-des-Petits-Ruminants, Hemorrhagic Septicemia, Black Quarter, Foot-and-Mouth Disease, East Coast Fever, Swine Fever, Newcastle Disease) and are dewormed at scheduled times.
- Conduct regular vaccination (if not prohibited by local/national law) in close supervision with veterinarians; deworming and dipping campaigns for the community animals as well as mobilization of communities for dipping campaigns.
- Seek advice from animal health technicians/ veterinarians for undiagnosed and complicated cases.
- Train community members on the importance of animal nutrition (forage/ fodder, locally available grains, and mineral supplements) and ensure their regular availability.
- Facilitate community members to establish nursery, and timely cultivation harvesting and conservation of various forage and fodder species.
- Train community members to improve animal sheds using locally and least cost available resources.
- Increase awareness to community members on the importance of provision of clean drinking water to animals.
- Timely castration; advise farmers to cull unproductive animals and those not regarded for breeding purposes.
- Animal identification (tagging or any other means) if necessary.
- Assist community members to select and purchase good quality animals and follow appropriate breeding techniques.



- Conduct climate-smart livestock management training and impart skills of improved farming practices for increasing production and productivity.
- Maintain case records and help community members to keep herd record files.
- Create awareness and motivate community members to run community managed livestock animal insurance.
- Formalize and establish an agrovet enterprise and ensure sustainable availability of veterinary medicines and agricultural inputs to the community.
- Assist community members to improve kitchen gardening during households visit.
- Where possible act as a model farmer for demonstration of improved technology or select potential farmer and encourage them to become a model farmer.
- Attend regular monthly community meetings with farmers and stakeholders to discuss existing animal management and health issues.
- Proper use and maintenance of necessary veterinary equipment e.g., microscope, emasculators, etc.
- Register with relevant authorities for license before providing services to the community and timely renewal of the same (if applicable).
- Epidemiological reporting of animal disease outbreaks especially notifiable diseases to relevant authorities.
- Act as a bridge between farmers and technical staff of Heifer International and project partners.
- Treat animals humanely and train others to do so accordingly.

Regularly attend trainings and refresher courses as may be organized by stakeholders and other relevant authorities in their field of operation

Limitations: CAVEs are not allowed to perform major surgeries, post-mortem for regulatory report, nor to write a legal prescription. They should follow country specific guidelines, bylaws and regulations while performing their tasks in the communities

Summary of Business Training to CAVE

Table: Business training curriculum for CAVEs

Day	Content	Time
1	Introduction, objectives, expectations	1 hour
	Roles and responsibilities of CAVEs	1 hour
	Principles of business, types, importance, entrepreneurship	2 hours
	Opportunities, problems and threats of CAVE business (SWOT analysis)	2 hours
2	Case studies of CAVE business	2 hours
	Business risks and risk management	2 hours
	Do's and Don'ts (fundamentals of entrepreneurship)	1 hour
	PSRP, Reflection of individual CAVE, goal setting	2 hours
3	Markets, market management, customer relations and communication skills, negotiation skills	2 hours
	Marketing campaign techniques	1 hour
	Introduction to business plan, types and importance of business planning	3 hours
4	Accounting and financial management, budgets, stock register, reporting	6 hours
5	Preparation and presentation of individual business plans	3 hours
	Preparation of action plans	2 hours
	Business formalization	1 hour

Summary of CAHW Training to CAVE

Content	Time
· Pre-Training- opening and introduction, objectives, ground rules, expectations	2 hours
· What is CAHW/CAVE program, roles/responsibilities	2 hours
· Basic anatomy and physiology of animals · Animal body systems-digestive, reproductive, respiratory, urinary, circulator, nervous etc. · External body parts of common livestock	3.5 hours
· Animal restraint · Restraining large animals · Restraining pigs · Restraining sheep and goats · Restraining birds · Restraining rabbits, llama, alpacas, etc.	4 hours

Content	Time
• Animal examination • Examining the environment/surroundings • History taking • Examining animals from a distance • Examining specific body parts • Measuring vitals- temperature, respiration, pulse, rumen motility • Difference between healthy and sick animals	2 hours
• Animal housing and production system • Free grazing vs. zero grazing • Housing systems • Designing houses for different species • Manure management	4 hours
• Medicines and vaccines • Different forms of medicines • Routes of administration of drugs • Vaccines and vaccination calendar • Do's and don'ts of medicines and vaccines • Ethno-veterinary medicines	3 hours
• Common diseases of animals • Hemorrhagic septicemia • Black quarter • Foot-and-mouth-disease • Foot rot • Hog cholera • Mastitis • Ephemeral fever • Eye infection • (This list may vary according to geography, climate and should be based on the most prevailing diseases of the community where the training is being conducted)	6 hours
• Digestive disorders in animals • Diarrhea • Bloat • Indigestion • Coccidiosis (can be under protozoal diseases too)	2 hours
• External parasites • General tips for controlling external parasites • Ticks, lice, mites and ring worms • Dipping • Tick borne diseases-ECF, heartwater, anaplasmosis and babesiosis	2 hours

Content	Time
· Common zoonotic diseases · Rabies · Brucellosis · Cysticercosis · Bird flu · TB	2 hours
· Internal parasites · General tips for controlling internal parasites · Liver fluke · Roundworms · Tapeworms · FAMACHA (as appropriate)	4 hours
· Animal breeding and selection · Selection of good quality animals- dairy cattle, sheep/goat, pigs, beef cattle, chicken, etc. · Breeding strategies (control of inbreeding, negative selection, etc.) · Breeding techniques · Artificial insemination	2 hours
· Reproduction and reproductive disorders · Puberty, estrus/ heat detection · Parturition · Care and management of newborn and pregnant animals · Problems associated with parturition-dystocia, retained placenta, prolapse, · Infertility and its management	5 hours
· Animal nutrition · Water and its importance · Nutrients and their importance (protein, carbohydrates, vitamins, minerals, etc.) · Feeds — roughages/ concentrates · Simple feed formulation · Fodder/ forage- plantation, harvest and feeding · Management of crop byproducts — straw treatment, hay and silage making, etc. · Mineral block preparation · Plant poisoning	5 hours
· General animal management practices · Castration · Dentition and aging · Ear tagging · Dehorning and disbudding (as appropriate) · Hoof trimming · Body weight estimation	6.5 hours

Content	Time
• Sampling and animal disposal • Sampling-blood, urine, skin scrapping, milk and feces • Postmortem • Disposal of carcass • Handling simple microscope of fecal examination	1 hour
• Common poultry diseases • Newcastle • Fowl pox • Flow cholera • CRD • Salmonellosis • Other (depends upon prevailing diseases in the community)	3 hours
• Record keeping and animal health/management regulations • Record keeping templates • Sample vet kit • Rules/regulations related to livestock	2 hours
• Wound, minor surgeries and first aid • Wounds and abscess • Simple suture • Simple fracture management	3 hours
• Animal transport and humane slaughter • Animal transportation protocol • Dos and don’ts of transportation • Humane slaughter of animals	1 hour
• Field practices • For practical applications of theoretical learnings inside the classroom • Recommended every day after day-3 for about 2-3 hours in the morning or in the evening depending upon the weather • Communities are encouraged to bring their livestock for examination and treatment • There must be a veterinarian trainer and para-vets to teach and train the practical skills	40 hours
• Post training evaluation/closing/follow up plans	4 hours
	110 hours*

* The training duration should be about two weeks to cover the topics outlined above. Some variations are expected according to scope of project, animal species available, other resources available for raising animals

Heifer recommends aligning this course with the WOAH prescribed curriculum, which Heifer has contributed to developing. Reference to WOAH curriculum: woah-competency-and-curriculum-guidelines-for-cahws-071024.pdf

Animal Breeding and Selection

Purpose: The purpose of this section is to provide a brief overview of standards and guidelines to be followed to improve the genetics of livestock in order to increase productivity in the Heifer communities. The outcome of improved breeding and selection programs will be to improve household farm productivity, to lower GHG emissions and to use natural resources wisely.

Strategy: To improve genetic merit of animals through appropriate breeding principles

Standards:

- Training/ extension programs for better understanding and adoption of improved breeding and selection.
- Quality animal selection for breeding using set standard criteria (appendix).
- Crossbreeding with superior quality breeding animals. In general, crossbreeding strategies make use of locally adapted breeds, which are not only tolerant to heat and poor nutrition, but also more resistant o parasites and diseases (Hoffmann, 2008). Locally adopted animals may adapt more quickly to climate change.
- Stop inbreeding through improved management practices and proper record keeping.
- Resource center establishment for producing animals of genetic merit and further multiplication.
- Breed improvement (of high yielding, better quality) native breeds through various means —germplasm conservation.
- Breed improvement through artificial insemination and, possibly, embryo transfer.
- Breeding policy aligned to national government strategies.
- Plan kidding in such manner that kidding of goats should occur in spring (February–March) and autumn season (October–November). Therefore, breed goats in summer (April–June) and autumn season (September–November) to achieve kidding in these seasons comfortable for kid's survivability. More than 80% females exhibit estrus symptoms in these months only. Doe also deliver significantly higher milk as compared to those which kidded in different months.
- Some goats (10%-20%) do not perform/adopt up to optimum level despite proper precaution, care and feeding. Therefore, regularly cull poor performers and aged animals as expenditure remains more in their management while productivity remains low.

Guidelines

The following guidelines will be considered while implementing animal breeding and selection practices in the communities.

Training and extension

- CAVE/extension staff training curriculum should include appropriate breeding strategies and ensure that content is delivered accordingly.
- Incorporate appropriate breeding techniques in Improve Animal Management (IAM) training and follow up on quality of delivery.
- Extension materials (videos, posters) are developed to create awareness to CAVEs/farmers on the importance/process of selection for genetic improvement.
- Training on reproductive health, heat detection and best time to insemination.
- Refresher training, as appropriate.

Selection of superior quality breeding animals

- Choose breeds according to adaptability for prevailing climatic condition, purpose of rearing and suitability for feeding management system.
- Select superior quality male animals for breeding based on the set criteria (refer to Annex 1 for details).
- Goats are used as foundation stock should be of pure breed, high genetic merit and from different flocks i.e., unrelated especially breeding buck.
- Efforts should be made to purchase young stock as they could be easily adopted in newer environments.
- Always purchase Peste des petits ruminants (PPR) vaccinated animals.
- Select superior quality female animals for breeding based on the set criteria.
- Right age and body weight of first service in small, medium, and large size goat breeds are 7-9 month age and 8-9 kilograms weight (Black Bengal), 10–12 month age and 16-18 kilograms body weight (Barbari, Osmanabadi), and 12–16 month age and greater than 20 kilograms body weight such as Beetal, Jakjhrana and Jamunapari.
- Maintain animal health and production records by project participants to help keep quality animals and cull unproductive animals.
- Promote selective breeding.
- Male goat's mothers should be high milk producers and there should be no genetic defects found in both the parents.
- Kids showing higher body weight gain at 60 days and 6 months of age should be retained for future use as breeding bucks.
- Male kids born as twins should be preferred.

Crossbreeding

- Selection/ placement of improved or exotic quality breeds.
- Use of selected male for natural breeding.
- Crossbreeding of indigenous breeds with improved breeds.
- In case of non-availability of purebred and high potential females then purchase relatively high potential graded or non-descript females and do up-gradation of them through high potential bucks suitable for prevailing climatic conditions.
- Maintain optimum percentage blood line in native or exotic breed as recommended by authorized agencies.
- Regularly detect heat and breed females for 12 to 16 hours after initiation of oestrus for higher conception.
- Females should be mated only when they reach 70 percent of the average adult body weight.
- Body weight of a doe at breeding should normally be less than the adult body weight of that breed.
- To help with better mating, young males can be paired with experienced older does and older bucks to younger does.
- If two services at an interval of 8 to 12 hrs is practiced, improvement in conception may be achieved.
- Breeding too young of doe results in the birth of weaker kids and thus higher kid loss.

Check inbreeding

- Create awareness to project participants on the negative implications of inbreeding.
- Avoid mating between closely related animals.
- Replace breeding males at the right time/ when necessary, depending on livestock species; maintain records of breeding animals in the community.
- Maintain appropriate ratio of male to female animals for breeding according to animal age and species.
- One healthy buck is sufficient to breed 25 to 35 females. However, in the beginning 10 to 15 females should be allotted a buck so that sufficient genetic variation could be created in breeding farm.
- Keep breeding male and female animals in separate pens to avoid unwanted pregnancies.
- Castrate non-breeding/ unwanted or inferior males.
- Rotate bucks after 2 to 3 seasons use and always select un-related buck to avoid inbreeding.
- Castrate crossbred male (F-1) and sell them for meat or sacrifice purpose, however half-bred females should be regularly upgraded for 3 to 4 generation from purebred buck of choice.
- Take precaution that half-bred or females under the process of upgradation should not be bred by their father (to avoid inbreeding).

Establishment of animal resource centers to contribute significant increase in animal production

Resource villages, community-initiated genetically improved animals, are established to produce animals of genetic merit for further multiplication.

- Establish performance records and participatory animal selection systems in the community.
- Build capacity of community to sustainably manage genetic resource villages/ communities for genetically superior animals for further multiplication.

Placement of quality animals in the community

Animal Procurement Committees, involving Project Management Committee members, CAVEs/Technical staff and partner NGO, should be involved in the selection and strategic placement of highly productive animals in the SHGs/communities (for details refer to animal procurement section).

Artificial Insemination (AI)

- Artificial insemination offers the best means of distributing germplasm from nucleus breeding flocks to many small flocks within each eco system.
- Fresh as well as frozen semen is used.
- The speculum method of insemination is used for ewes and does.
- Generally artificial insemination leads to lower reproductive rate than natural service and frozen semen gives even much lower pregnancy rate that is around 40%.
- Cervical insemination is generally followed for better conception rate.
- Collaboration with government/ private institutions and other partners (NGOs, associations, universities, etc.) for technical assistance and support in artificial insemination service provision using exotic breed or good quality semen in low producing animals of project areas.
- Artificial Insemination training to technicians from project areas to help them provide AI services in a sustainable way.
- Provide or facilitate acquisition of AI equipment where necessary.
- Maintenance of AI service record sheet by trained inseminators.
- Reproductive health management.
- Screening for reproductive disorders or diseases.
- Prevention and treatment of anestrus repeat breeders and abortion.
- AI helps producers to utilize their prize bucks that may be physically injured and unable to mate.
- AI allows producers to increase their herds without purchasing and maintaining bucks or losing them to predators, injury, or illness.
- AI is effective in controlling diseases.
- AI is an important breed preservation process.

Climate-Smart Livestock Management Training for Project Participants

Purpose: The purpose of climate-smart livestock management training is to equip project participants with the skills and knowledge necessary for appropriate animal management practices for increasing the production and productivity of their animals. This training will help participants understand the basic minimum requirements for improved animal management, identify the gaps in their existing animal management practices and make plans for improvements.

Strategies: The following strategies are recommended for the development and implementation of climate-smart livestock management training to the project participants.

- As part of the project requirements, all project participants should undergo IAM training.
- Design a training curriculum aligned with the principles of adult learning, and design modules and extension materials according to livestock species in the respective country program.
- Identify training service providers from within or outside of the communities and provide them orientation or guidance so that the delivery of the training to participants becomes more effective. Priority should be given to CAVEs/ extension staff/ co-mentoring (peer to peer learning) team to enhance this training with community facilitators or others.
- All trainings should be conducted in the local language.
- Regular refresher training can be offered through group meetings or hands-on community training methodologies focusing on the specific needs and interests of the project participants.

Recommended training topics and duration

Duration: Basic training takes 16 to 24 hours including both classroom and in the field. Training should not be prolonged over many days in order to respect other jobs, activities and priorities of the participants.

Topics to be included in the training

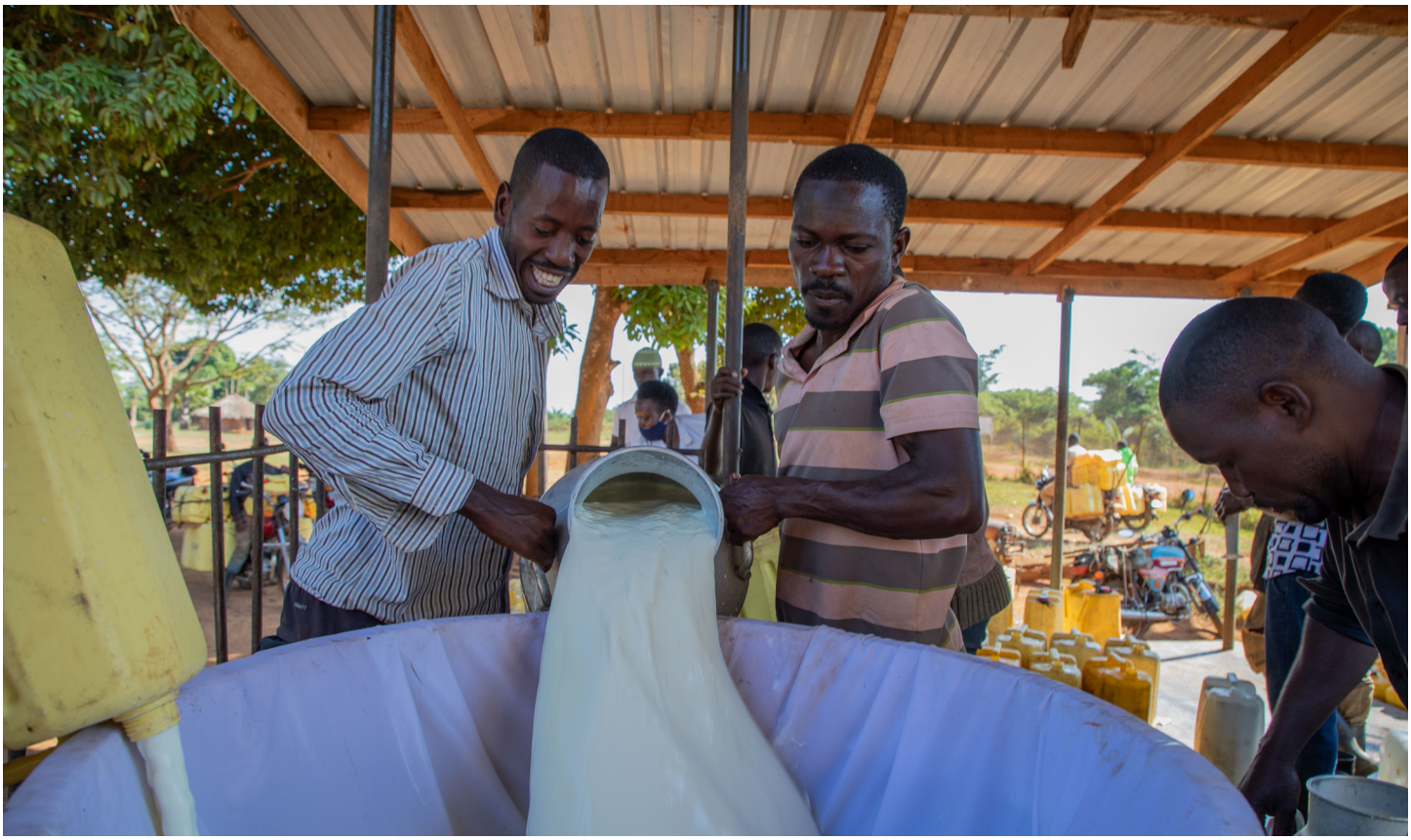
Major Topic	Sub-topics
Improved animal management	• Introduction • Benefits of climate-smart livestock management practices (focus on entrepreneurship/ economics) • Climate-smart animal management
Animal housing	• Introduction, importance and function of animal sheds • Site selection and lay out (area, materials and costs) • Cleanliness of animal house and management of animal wastes (composting and urine management). Assure adequate ventilation • Design and demonstration of model animal housing (include basic minimum standard) according to species • Protection of animals from predation and seasonal variations
Animal nutrition	• Introduction of animal nutrition — feeds and feeding • General information on nutrients, vitamins, minerals and water and their requirements • Materials and method to prepare balanced feed (low-cost feed formulation and feeding- according to age/ species) and physiological status

Fodder / forage management	· Types of fodder/forage · Cultivation, harvesting, feeding and conservation of forage/fodder · Management and storage of feeds, crop residues and by-products (hay, urea treatment and/or silage making) · Fodder/forage nursery and its advantage · Poisons (plants and other)
Mineral block preparation	· Minerals and their importance · Source of minerals · Preparation of mineral block or UMMB at household and cooperative level
Improved breeding management	· Selection of good quality breeds · Heat detection and right time of breeding · Management of breeding animals- females and males (bulls, bucks), etc. · Methods of breeding-selection, crossbreeding · Checking inbreeding and negative selection · Artificial insemination and natural breeding · Management of infertility, repeat breeding · Castration
Care of newborn and pregnant animals	· Care and management of pregnant animals · Care and management of newborn animals (method of cutting and treatment of the umbilical cord, milk replacer, colostrum feeding, health management) · Care of pregnant females and drying off lactating animals
Management of lactating dairy animals	· Udder management practices (mastitis, udder edema) · Feeding of lactating animals, milking practices and hygienic /clean milk production
Parasites	· Internal and external parasites-symptoms, life cycle, control and prevention (common) and their consequences · Strategic deworming
Animal Health Management	· Differentiation between healthy and sick animals · Major diseases (prevalent locally) — identification by symptoms, prevention and control · Disposal of dead animals · Biosecurity and zoonosis · Vaccination calendar · Dipping/ spraying calendar
Ethno-veterinary medicine	· Identification of locally available herbs/ medicinal plants · Identification of ethno-veterinary practices
Record keeping and Risk Management and AOB	· Record keeping templates, practical exercise · Method and benefits of record keeping · Brief overview of animal insurance and its benefits · Importance of CAVE for farmers · Backyard poultry production

Note: Slight variations are expected in the curriculum depending upon the animal species and the communities where the training is being conducted. Training materials should be developed in the local language. Some topics that cannot be covered during these trainings can be covered during meetings of the communities/ SHGs.

Refresher training

Identify the gaps and design refresher according to need and demand, species, market opportunities etc. Encourage participants to seek out consultation or refresher training, whenever necessary.



Milk Hygiene

Purpose: The purpose of this section is to describe strategies and guidelines for hygienic production, processing; handling and distribution of milk and milk products to safeguard public health safety and assure quality of milk and milk products; and to reduce economic losses resulting from milk spoilage.

Strategies: The following strategies are recommended for promoting clean/ hygienic milk and milk product production, processing, handling and distribution (project households, dairy cooperatives).

- Create awareness to the communities/ milk handlers on milk safety and the importance of milk hygiene.
- Build the capacity of dairy farmers, milk handlers on good dairy management and hygienic milking standards and practices at the farm level.
- Work with relevant government, private and development partners to facilitate the development of milk collection/ bulking/ chilling centers.
- Build capacity of the milk collection center management on hygienic milk handling, transportation, processing and distribution standards and practices, milk quality testing, statutory/ regulatory requirements for trade in milk and milk products.
- Develop/ Reproduce materials on hygienic practice for milk and milk products and share with project participants i.e. milk producers, handlers, bulkers, transporters, traders etc. for compliance.
- Provide sustainable animal health services to livestock raised by project participants (refer to Animal Health section of the guidelines).

Guidelines

For addressing milk hygiene, the following guidelines should be followed.

Raw milk must be:

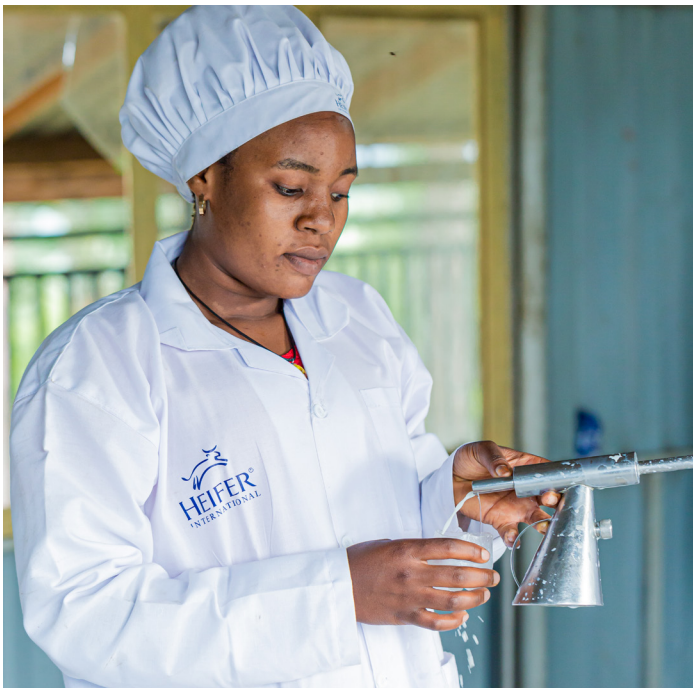
- Free from debris and sediment.
- Free from odors or smells.
- Low in bacterial count.
- Normal composition and acidity.
- Free of antibiotics and chemical residues (follow country dairy standards).

At the Farm/Household Level

- Milk healthy cows, free from zoonotic diseases e.g., Brucellosis, Tuberculosis and Anthrax.
- The milker should wash hands before milking.
- Udder hygiene is important. Wash and dry the udder before milking for clean milk production.
- Strip the teat before milk collection to check for mastitis (if applicable).
- Separate animals showing clinical symptoms of diseases through the milk and milk them last or use separate milking equipment or by hand. Do not use such milk for human consumption.
- Squeeze the teat from the top while milking. Do not pull teat downward.
- Clean manure daily from the animal shed to reduce odors, diminish fly populations and keep area dry.
- Milk cows free from drugs. Observe the withdrawal period as per the drug guidelines.
- Cow feed should be clean and free from disease causing organisms and free from milk tainting substances.
- Use clean and appropriate milking equipment for handling and storing milk; i.e., Food grade materials (aluminium or stainless steel).
- Separate milk harvested from sick or treated animals for appropriate disposal.

Milk Storage facilities:

- Use appropriate containers for storing milk i.e., aluminium or stainless-steel utensils.
- Milk storage equipment such as milk cans must be kept clean and in good condition (i.e., without cracks or dents can cause equipment to be difficult to clean and can easily harbour bacteria.



Milk transportation

- Milk cooled on the farm or cooling centers may be transported in milk cans or in bulk tankers. Bulk tankers are insulated, so the milk will remain cold until it reaches the processing plant (provided the transport is fast)
- Milk should be delivered before the temperature of milk rises above 10° C.

Milk transport vessels

- All milk transport vessels should be thoroughly cleaned.
- Water should be available at milk cooling centers to enable all milk supplier vessels or cans to be rinsed with cold water.
- Drivers of such vessels should be licensed according to the relevant national regulations and they should receive adequate training in the hygienic handling of milk. They should also observe good personal hygiene.

Cleaning and disinfection of milk handling equipment

- Milk handling equipment, utensils, transport tankers and storage containers should be thoroughly cleaned and disinfected using approved detergents before and after use.
- Rinse the milk handling equipment thoroughly after cleaning to remove all detergents and disinfectants.
- Use potable water for cleaning and rinsing the milk handling equipment.

Milk collection and Quality control testing

- Collected milk should be transported and delivered to the processing plant quickly; ideally within two hours of milking, to avoid introduction of contaminants and to minimize growth of micro-organisms in the milk.
- Seal the lids of the milk cans as soon as they are filled.
- Protect the milk cans from direct sunlight e.g., by use of shelters.
- Every milk collection center, distribution point or plant should be equipped to test for quality upon reception of the milk to quickly determine the suitability of raw milk for processing.
- The tests should include the assessment of the extent of abnormalities and adulteration in the milk including water, preservatives or antibiotics that may have been added. The following minimum milk quality control tests should be performed:
    - Organoleptic — olfactory and visual.
    - Density — lactometer reading.
    - Alcohol precipitation test or the alizarin alcohol test using minimum 68% ethanol.
    - PH using universal indicator.
- Weigh, filter and cool the accepted milk to a temperature of 50°C or lower.
- Provide cold storage facilities at the milk collection centers where milk is not transported or collected twice a day to ensure that the milk arrives at the processing plant at a temperature of 50°C.
- Milk collection centers should have proper drainage facilities, which should be maintained clean at all times. Facilities must be cleaned and disinfected according to industry standards.
- The supervisor of the center should have basic milk handling training, at least a certificate in Dairy Technology or related field, to effectively handle milk reception and routine hygienic procedures.

Milk handling at the milk collection centers or milk hub

- The person in charge of the milk collection center must be trained in the management of raw milk handling and retain appropriate and periodic training.
- Floors of dairy facility buildings must be washable.
- Walls should be smooth, washable and painted with light color.
- Windows should be rendered insect proof by mosquito netting to keep flies out.
- Rooms should be kept clean and in good repair.
- Equipment and utensils should be disinfected immediately after use.
- Personnel must practice good hygiene and be in good health through regular health checks.
- Hub premises should be provided with clean running water and well-maintained washrooms.

Workers should wear clean protective clothing and working gear (e.g. rubber boots, coats, overalls and caps.

Distribution of milk and milk products

- Milk and milk product sales agents should be registered and issued with certificate/ trade license in accordance with the Public Health and business regulations of the country.

Recommended preservation control methods

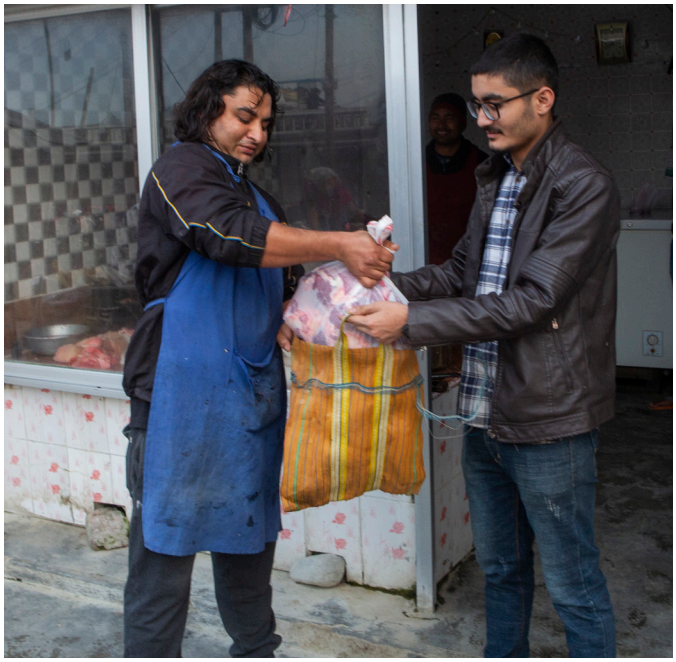
- Only fully developed and approved methods for preservation of milk and milk products like cheese, yogurt, etc. must be used in processing.
- No chemical preservatives should be used for milk and milk products.
- Drinking raw milk by the project participants or communities is not advised.

Meat Hygiene

Purpose: To ensure that meat intended for human consumption is of good quality, free of disease and non-harmful to human health, is processed in a manner which avoids further contamination and allows preservation for future consumption.

This purpose is achieved by the provision of healthy animals, ante-mortem and post-mortem inspection procedures and through hygienic processing with minimal contamination.

Strategies: The following strategies are recommended to ensure that proper meat hygiene guidelines and standards are followed within all Heifer International livestock programs and projects.

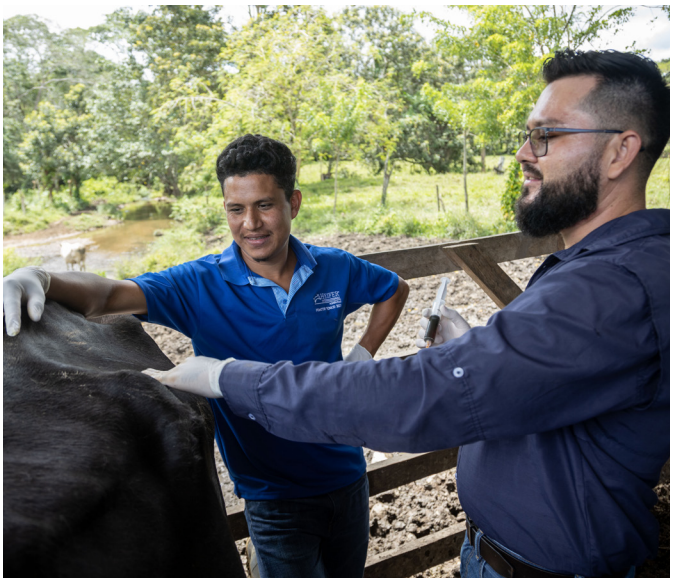


RULE OF THUMB:

No carcass whatsoever — that has died, been found dead from sickness, loss of condition and/ or from an unknown reason — shall be recommended fit for human consumption.

Build capacity of community through training on meat handling and hygiene

- Meat handlers in the project area or slaughterhouses managed by cooperatives, associations or hubs will receive training on meat handling and hygiene Therefore, meat hygiene should be a mandatory topic in the training curriculum of CAVEs and meat handlers.
- Create awareness among farmers about the benefits of practicing meat hygiene.
- Design and develop training and extension materials for CAVEs, meat handlers and farmers on meat handling and hygiene.



Ensure appropriate selection of animals for slaughter: Ante-mortem inspection

- The animal(s) to be slaughtered should be identified (species, breed, sex, age and owner).
- A physical examination of the chosen animal(s) should be carried out by a technical individual such as CAVE, or a qualified veterinarian (where appropriate or applicable). Local laws may require a certificate of inspection of animals in transit and/or prior to slaughter.
- The reason for slaughter of the animal should be clarified e.g. household consumption, for the market, and/ or other.

Ensure appropriate site for animal slaughter and slaughterhouses (abattoirs)

General household slaughter

- The chosen area should be located away from other livestock housing and animals.
- A processing surface that can be cleaned with water is preferable. A large plastic ground cover can be used.
- Adequate clean water should be available according to the size and number of animal(s) to be slaughtered.
- There should be provision of a shade and/or holding space.
- A pit should be dug for disposal of unwanted and condemned materials which will be buried upon completion of processing.
- Means should be provided for fly control e.g., fly traps or manual fanning.
- Avoid dusty and windy conditions if processing in the open.

Slaughterhouses (abattoirs)

- The location, construction and operation of slaughterhouses, facilities and or abattoirs should be done in accordance with the local authority's approval, regulation and standards.
- The standards of construction and hygiene guidelines and standards should be governed and appropriated by such local authorities through local legislation available (if any) such as public health act.
- Other considerations include: Appropriate functional plant layout and sanitary design of equipment, appropriate waste and pest control measures, appropriate sanitation procedures (cleaning and disinfection), compliance with potable water criteria, cold chain management, regular examination of health and personnel hygiene, regular training of staff on hygiene requirements and implementation of biosafety and biosecurity measures therein.
- Personal safety equipment for processing personnel and appropriate equipment that is clean, sharp and in proper working condition must be provided.
- Facilities should be properly fenced off to prevent entry of stray animals.

Ensure animals are slaughtered humanely

- It is important that the slaughtering process is as pain and stress-free for the animal as possible. The slaughtering process must be completed by a well-trained individual.
- Humane slaughter is embodied in the Heifer's Sharing and Caring Cornerstone and is in accordance with animal wellbeing principles and local legislation (if any) against cruelty to animals.
- The animal should be stunned to render it unconscious and pain free. Proceed quickly to sever the neck blood vessels with a sharp knife.
- It is imperative to also observe any religious protocol during slaughter as required by the community and or purpose of slaughter of the animal(s).
- National/ local legislation should be observed (e.g. animal cruelty act) for commercial entities such as slaughterhouses, facilities and or abattoirs.

Personal and personnel hygiene

General personal hygiene

- Processing personnel must be free of any contagious disease and open wounds.
- One should scrub hands to the elbow level with soap and clean water and thoroughly dry them.
- One should wear protective clothing (where applicable) such as overalls, wellingtons, head covering and/or an apron.

Personnel hygiene, this applies to all individuals working in slaughterhouses

- All individuals should be trained on good hygienic practices.
- Individual(s) known, or suspected, to be a carrier(s) of contagious diseases shall be prohibited to enter the premises.
- The workers in the clean area shall refrain from behaviors which could result in contamination of meat such as smoking, spitting, eating, coughing or sneezing without covering the meat.
- Wear clean protective clothes. Wash hands before starting work. Wash hands and sterilize utensils between carcasses.
- Clean/disinfect hands, knives, equipment and/or clothes when they come in contact with highly contaminated areas or condemned animal parts that are likely to contain pathogens.
- Observe strict toilet hygiene (i.e., remove apron, wash and disinfect hands). The toilets must be kept clean and must not have direct access to production areas to reduce the risk of spreading organisms such as Salmonella.

Carcass dressing

General: All species

- Proper equipment, such as knives, hooks and saws, must be sharp. Blade sharpeners available and used frequently, as needed.
- The carcasses should be afforded adequate bleed out time. For effective bleeding, carcasses should be hung upside down following severing of the neck vessels. Chickens ~ 2 minutes; Goat and Sheep ~ 8 minutes; Cattle ~ 12 minutes.
- The knives used for skinning should not be used to for cutting any viscera or meat. Knives used for cutting intestinal material should not be used for edible meat processing.
- Hot water should be available for sterilizing knives, or a knife dip/ disinfectant should be available.

The following steps should be observed for appropriate carcasses dressing with respect to animal species:

DIRTY AREA	CLEAN AREA
Stunning, Bleeding, Scalding, Dehairing/ Feather, Plucking, Skinning	Evisceration, Splitting Carcass, Washing, Refrigeration, Handling and Transportation of Carcass and Meat

Ensure appropriate carcass examination during dressing

General

- It is recommended to carry out slaughter and carcass dressing where there is enough lighting e.g. during broad day light or artificial white lighting when within an enclosure.
- Upon dressing, the main things to observe are color of the carcass, odor, appearance, any abnormalities such as growths, bumps, swellings, protrusions, bruises, hemorrhages and injuries.
- The extent (localized/ generalized) and chronicity (acute/ subacute/ chronic) of any abnormality is to be ascertained.
- Trim the affected part or condemn the whole carcass depending on the nature of the abnormality this is done by certified inspection staff or CAVEs within the community.
- Clean offal (liver, kidneys, heart, spleen and lungs) should be separated from dirty offal (digestive system and reproductive tract).

Organ examination and condemnation of pathological structures

General

- All organs should be assessed for color, appearance, shape, size and weight upon inspection.
- Cross sectional incisions should be done to check for organ integrity and for parasites such as helminths. Infested organs should be condemned, and localized portions trimmed and condemned.
- Parasitic cysts (hydatid) identified should be trimmed, taking care not to perforate the cyst.

Appropriate disposal of carcass waste, unwanted remains and condemned parts

- All the carcass waste, unwanted remains and condemned portions should be properly disposed to avoid contamination of meat and the surrounding environment.
- The means of disposal should be effective enough to prevent access to stray animals (e.g., incineration, or burial in a pit).
- The means of disposal should not pose a health hazard to the human community.

Appropriate storage, preservation, handling and transportation

- Dressed carcasses should be immediately dried and cooled down to 0°C as soon as possible.
- In areas with no refrigeration the meat should be transported as soon as possible to the market.
- Other means of meat preservation such as smoking, and curing must be done within a reasonable time period to extend the shelf life of the meat and to avoid spoilage.
- Refrigerated transportation trucks should be used for commercial purposes of meat transportation. They should maintain a temperature of less than 4°C during transportation.

Backyard Poultry Production

Purpose: The purpose of this chapter is to describe standards and guidelines in the production of local or indigenous poultry (domestic chickens, ducks, guinea fowl, turkeys) in line with Heifer International Animal Well-Being principles and tenets.

These guidelines and standards are designed to guide basic activities needed for the development of the backyard poultry of the project participants as a cross-cutting implementation strategy in all projects and programs within Heifer International.

These guidelines and standards will take into consideration the varied local or indigenous poultry production practices found in the various project communities and incorporating user friendly improved technologies.

Objective:

- All projects currently under implementation are encouraged to incorporate backyard poultry production activities by the communities.
- All new projects under development are encouraged to include backyard poultry as supplementary source of income and nutrition.

Procurement and Transport of Poultry

Objective:

Project and project implementing partner staff are encouraged to educate all farmers on the selection of good birds as described as the technical standards especially roosters and hens with good brooding characteristics.

Standards

Guidelines for Stock Purchase

- All poultry should be obtained from disease free communities.
- Avoid purchasing poultry from open poultry markets.
- All new birds being introduced into stock should be quarantined or put under observation for at least a week and preferably for ten days.
- Project and partner staff should facilitate the flock health by way of mass vaccination of all poultry in the community against endemic diseases as part of the deliverables. Ensure this is done regularly (should be immediately after purchase) or on the advice of specialists at the source.

Poultry Transportation

- This should be done in comfortable locally woven transporting baskets and cages.
- Transportation of birds on bicycles by farmers with feet tied and hung-over handlebars is not allowed.
- Vehicles, crates and containers should be of adequate size to allow room for all birds and to provide a suitable environment to minimize the risk to the animals from extremes of temperature, weather and humidity.
- Vehicles, cages and containers should be properly cleaned before and after transportation. Transportation could be done early in the morning or late evening to avoid heat stress.

Poultry Housing Management

Purpose:

The purpose of this section is to describe the strategies and guidelines for a standard requirement of local poultry housing to enhance safety, productivity and well-being.

Strategies:

The following strategies are recommended to promote appropriate poultry housing:

- Design low-cost poultry housing models. These housing models should provide adequate ventilation and be easy to clean and disinfect.
- Develop training and extension materials for promoting appropriate poultry housing models by agroclimatic zones.
- Recognize model farmers who adopt appropriate housing models.
- Promote and mainstream housing management practices as part of regular activities.

Guidelines

Poultry housing should provide enough space for each bird to roost, spread wings and display the bird's normal behavior.

Guide farmers to select appropriate site for poultry house construction.

Recommend low-cost housing which will meet several criteria as indicated below:

- Protect birds from disease exposure and extreme weather conditions by constructing enclosures.
- Promote rotation grazing within the enclosure so that birds get sufficient grasses and insects from the pasture.
- Permit provision of clean water and feed without contamination from droppings.
- Facilitate easy monitoring of health and behavior of the birds.
- Provide sound environmental care through proper drainage system and manure collection (deep litter or raised platforms on stilts).
- Provide nests for egg laying hens.
- Provide separate area/compartment for care and management of hatching and care for chicks and a separate area for sick birds.
- Permit efficient and low-stress daily care:
    - Provide physical comfort (e.g. variety of surfaces, temperature control).
    - Provide good ventilation and optimum sunlight.
    - Provide birds with the opportunity to express normal behavior, such as perching, walking, running, jumping, scratching, playing, and interacting with other birds.
    - Provide facilities that are easy to clean and disinfect.
    - Protect from four-legged and flying predators.

Poultry Nutrition

- Chickens should be provided with balanced feed depending on the locally available feed resources. Some practical tips for feeding local poultry are the following:
    1. Provide a small amount of supplemental feed twice a day.
    2. Energy source such as maize/rice grit, wheat bran, millet, etc.
    3. Insects, larvae, grubs and snails (as available in the pasture).
    4. Green grasses (pasture raised).
    5. Shell of snails (dried and pulverized).
    6. Food waste from the kitchen.
- Chickens should be provided with safe, clean and adequate drinking water.
- Provide adequate feeders and drinkers from locally available materials with the objective of ensuring feed availability and accessibility all the time.
- Develop and recommend feeding protocol according to stage of growth of birds/ supplementation during stages (like before laying, hatching, brooding, starter).

Poultry Health and Biosecurity

- Promote a housing environment that will safeguard chickens by providing fencing or an enclosure made of locally available materials.
- If flying predators are a problem, then some form of netting to protect the chickens is necessary.
- Ensure disinfection of a poultry house and equipment prior to reception or placement.
- Develop a strategy of cleaning and sanitation of bird nests, so that clean eggs are produced, which will provide sanitary eggs for the table and hatching of good quality chicks.
- Establish a sick pen where all sick and suspected unhealthy birds can be isolated for further investigation.
- Provide a vaccination program depending on the region as advised by the local veterinarian.
- Promote good brooding practice technologies to prevent chick mortality.
- In case of an epidemic disease outbreak, consult/ report to local line agencies and collaborate with these agencies for disease containment.
- Avoid unnecessary persons to visit chicken farms (backyard/ commercial).
- Provide an effective strategy in controlling the external and internal parasites.
- This should go hand in hand with the parasite control in the external environment.
- Develop and implement awareness raising programs for the entire communities on poultry health and biosecurity.

Egg Grading/Hatching

- Promote egg candling and sizing as a strategy of egg grading.
- Ensure that all eggs regardless of grade or size or those sold as not graded and not sized, should be clean and have no signs of breakage.
- Promote appropriate egg storage/ quality control /grading-marking system to maximize benefits.
- Promote household nutrition and then source of income using eggs that are not used for hatching.
- Recommend appropriate hatching strategies or techniques to the farmers to maximize hatchability.
- Practice weaning of chicks so that hens to reduce the laying intervals and can increase the clutch and egg production/ clutch

Marketing of Birds

- Recommend appropriate age/ size of the birds for sale according to market demand to maximize profit.
- Promote collective sale of birds by bulking at the coops/ associations to get better price and also meet the demand of the large buyers.

Appendix 1: Animal Selection Criteria

In Heifer project areas, breed and animal selection is based on the inputs and systems in which livestock are raised. Heifer promotes the use of local breeds of livestock that are adapted to the region.

1. Dairy Cattle

Some examples of good selection characteristics:

- Verify the milk yield records of dam and daughters of sires.
- The cow should have good feet and strong legs.
- Bulls must have good feet and legs.
- The udder must be uniform, pliable, silky in texture and sack-like in nature.
- The udder, when viewed from the side, should not hang below the cow's hock.
- The central or median suspensory ligament of the udder must be extremely strong and well attached.
- The front teats should be even and centrally placed on each quarter of the udder.
- Teat size (over- and under- sized teats should be avoided); shape and placement are highly heritable.
- A cow with a deep, long body with wide, well-sprung ribs and a large body capacity must be emphasized while selecting.
- Sharpness across the shoulders (or crops) instead of being broad (thick) and beefy.
- Flatness of bone, seen especially on the inner thigh where the bone should be flat and "clean" rather than strong and coarse.
- A thin, fine tail instead of a thick, robust and coarse tail.

2. Goats

Dairy Goat – Doe

A dairy doe should have:

- A bright, sleek, loose, and pliable coat.
- Alert, bright eyes with pink mucosa.
- No discharge from eyes and nose.
- Feminine characteristics, including fine features.
- A straight top line and sharp withers.
- One should be able to feel individual vertebrae along the spine.
- A long rump that is not too steep and not too straight.
- A wide chest.
- Plenty of capacity for feed and kids; spring of ribs.
- A deep heart girth.
- Straight legs with prominent hips and sharp pins.
- It is better to purchase a goat with two dental ages.
- A strong muzzle with a jaw that is not undershot nor overshot.
- Good teeth — not loose, broken or missing.
- A sound gait with no trace of a limp.
- An udder that blends smoothly with the body wall and is securely bound across the entire. upper surface with two teats.
- Females have the ability to have two to three kids in parturition can be selected.
- Soft and shiny skinned goats should be selected, and this indicates the health of the animal.
- The female should have the maternal character of protecting her kid and with better milk feeding abilities.
- The females should possess a long preferably low set body, roomy hind quarter, well-formed pliable udder, active foraging habit.
- Females having poor milking capacity, broken mouth, blind teat and meaty udder should be disqualified from the breeding program.
- Right age and body weight of first service in small, medium and large size goat breeds are 7 to 9 month age, 8 to 9 kilograms weight (Black Bengal), 10 to 12 month age and 16 to 18 kilograms body weight (Barbari and Osmanabdi), and 12 to 16 month age and greater than 20 kilograms body weight (Beetal, Jakhrana and Jamunapari).

Dairy Goat – Buck

The buck used for breeding is half of your herd. Therefore, it is important to look for a buck that will reinforce the doe's strong genetic points and does not share any of her major genetic defects. Below are a few indications of a suitable breeding buck:

- History of his sire and dam and age of the buck.
- Excellent health and sexually virile.
- A masculine body with medium-length head.
- A strong, broad muzzle with large open nostrils.
- Bright eyes with pink mucosa.
- No under-bite or over-bite.
- A strong, straight, smooth back.
- A long, wide, and nearly level rump.
- Strong, sturdy legs that are wide apart and squarely set.
- Solid feet.
- A pear-shaped scrotum with two testicles of equal size.
- A deep heart girth and wide chest floor.
- The animal should have both the testicles intact in the scrotum.

Meat Goats

In addition to similar characteristics of dairy does and bucks, a quality meat goat should have:

- Muscling visible in forearm, hindquarters and inside rear legs..
- A strong wide, and level back with a sturdy wide rump and loin.
- Animals with broader back and rump regions are better traits. Broad back and rib cages indicate that the goat has better feed intake capacity. Whereas broad rump region indicates better breeding characters.
- Meat goats should be above average in overall length of body and general size.
- From the front, dairy does and bucks should be wide and smooth with well-spaced front legs and a broad, deep chest floor.
- Strong legs and sturdy feet are essential.
- Rear legs should be straight and set wide apart.
- Pasterns will ideally be strong.
- A breeding buck should be selected from purebred parents that meet breed standards, with the sire and dam being large in size. The doe (mother) should have a good milk yield record. Selection can be done at 6 to 9 months of age for small breeds and 9 to 12 months for large breeds. However, the buck should only be used in breeding at 12 months for small size (Black Bengal), 14 to 16 month for medium size (Barbari), and 16-18 months in large size breeds (Beetal).

Meat Goat – Doe

- Smooth shoulders that blend smoothly into the neck and rib cage.
- The body should have volume and capacity, demonstrating productivity to breed, carry and rear young in a pasture situation.
- The body should be of adequate size for breed and age.
- The udder should ideally be rounded, symmetrical and situated well above the hocks. The udder should be well suspended, with two equal-sized teats.
- There should be adequate muscling in the rear legs without losing femininity.

Meat Goat – Buck

- Meat bucks should have adequate muscling.
- The head should have a broad strong muzzle and horns set far apart.
- The body should have a heavier chest and front part of the body.
- Coarse shoulders due to adequate male hormone.
- Testicles should be of equal size, smooth, lump-free.
- Buck should have only two rudimentary teats.

Note: Selection of sheep also follows similar criteria mentioned for goats

3. Pigs

Young female (Gilts) for breeding purpose

- Select females from best milking mothers and from the largest litters.
- Select larger, faster growing females with no obvious defect (hernias, lameness, etc.).
- Gilts should have at least 10 to 12 functional and well-developed teats with no blind glands.
- Gilts should have the desired body type based on the breed characteristics. Long, lean and muscular type animal for better meat quality.

Male pig (Boar) for breeding purpose

- Free from hernias, lameness and other health defects.
- Boars should have a masculine appearance.
- Two large and well-formed testicles.
- Boars should be from large litters and from fastest-growing household.
- Boars should not be related to the pigs of your farm.
- Originate from disease-free herds.
- You can select from another breed to get the advantages of crossbreeding.

Note: The selection criteria for other species can be added as needed.

Developed by Heifer International's Animal Well-Being Community of Practice (CoP), 2018, updated February 2025

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